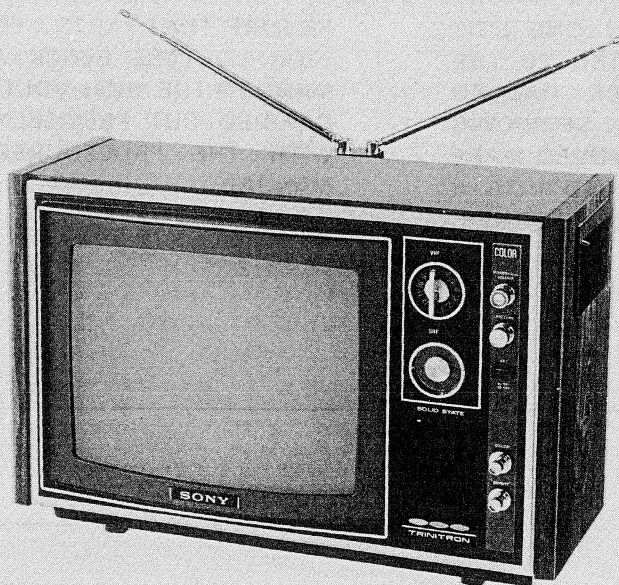


KV-1310R

Chassis No. SCC-81A-A



TRINITRON®
COLOR TV

SPECIFICATIONS

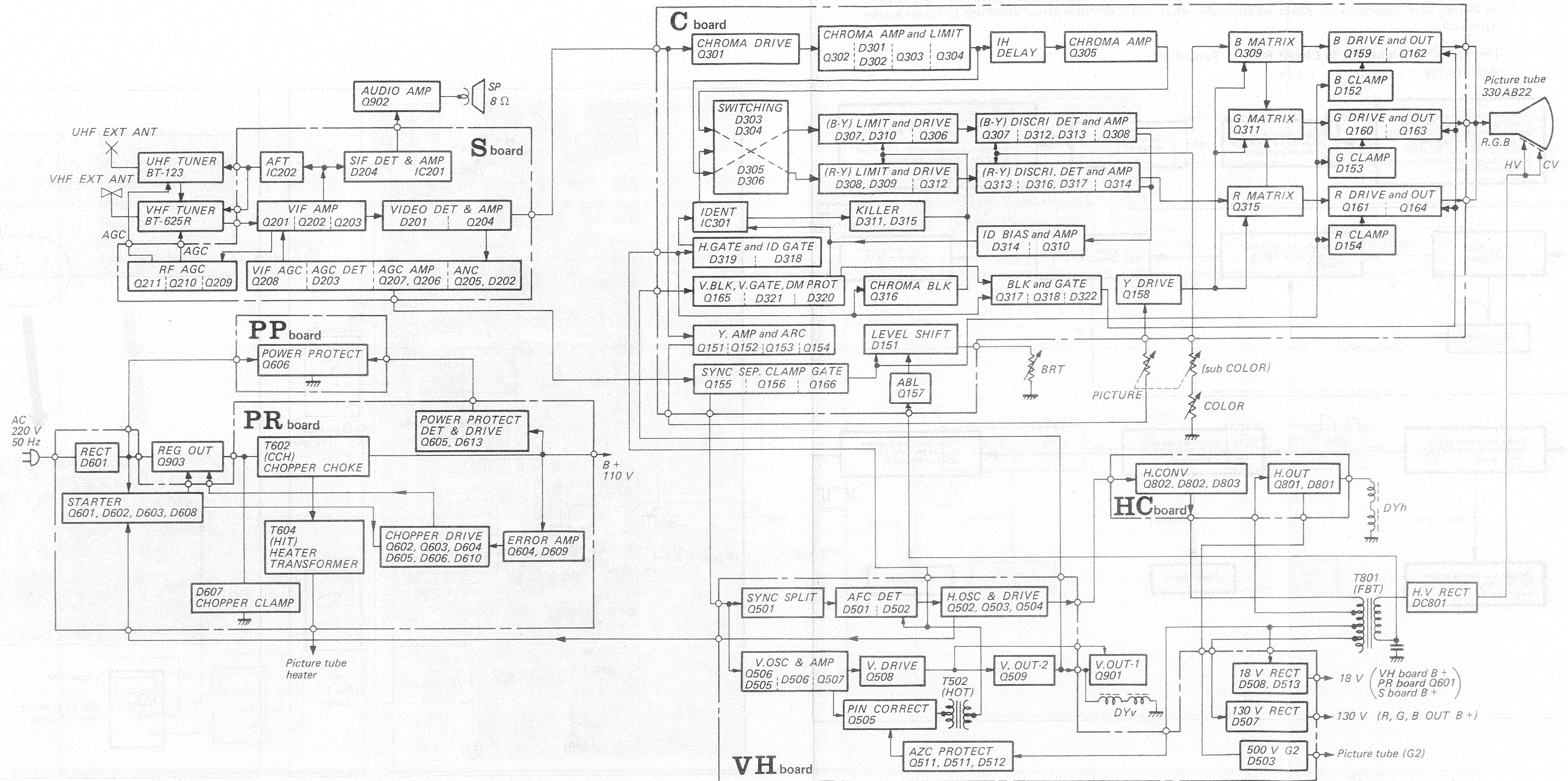
TV-signal standards:	OIRT system SECAM color system	Video system:	RGB cathode drive
Picture tube:	13" (measured diagonally) 90° deflection TRINITRON system (Econoquick)	Automatic controls:	AFT (automatic fine tuning) AGC (automatic gain control) AFC (automatic frequency control) ANC (automatic noise canceller) ABL (automatic brightness limiter) ACK (automatic color killer) ADG (automatic degaussing) AVR (automatic voltage regulator)
Semiconductors:	72 transistors, 57 diodes and 3 IC's	Power requirements:	220 Vac, 50 Hz
Antennas:	VHF: 300 Ω balanced (*telescopic dipole antenna) UHF: 300 Ω balanced *Note: Supplied with accessories	Power consumption:	78 W
Channel coverage:	VHF: ch. R1 ~ R12 UHF: ch. 21 ~ 68	Dimensions:	475 (w) x 321 (h) x 403 (d) mm
Intermediate frequencies:	Picture i-f carrier: 38.9 MHz Color subcarrier: 34.47 MHz Sound i-f carrier: 32.4 MHz	Net weight:	14.3 kg
Sound system:	6.5 MHz intercarrier Output power: 1.2 W (at 10 % harmonic distortion) Speaker: 8 x 12 (cm) elliptical, 8 Ω	Accessories:	VHF telescopic dipole antenna (AN14-E) Instruction manual
		Anode voltage:	20 kV at zero beam current

SONY®
SERVICE MANUAL

SECTION 1

TECHNICAL DESCRIPTION

1-1. BLOCK DIAGRAM



1-2. TROUBLESHOOTING CHART

Note: A complicated power supply circuit is used in KV-1310R, and troubles caused by this circuit may not be located by the conventional voltage check technique. Therefore the new troubleshooting procedure given below will be useful in locating these failures in the power supply circuit which result in: No raster-no sound due to circuit breaker turned off.

[No raster, No sound due to Circuit Breaker Turned off]

Refer to Fig. 1-1 (a) and Fig. 1-1 (b)

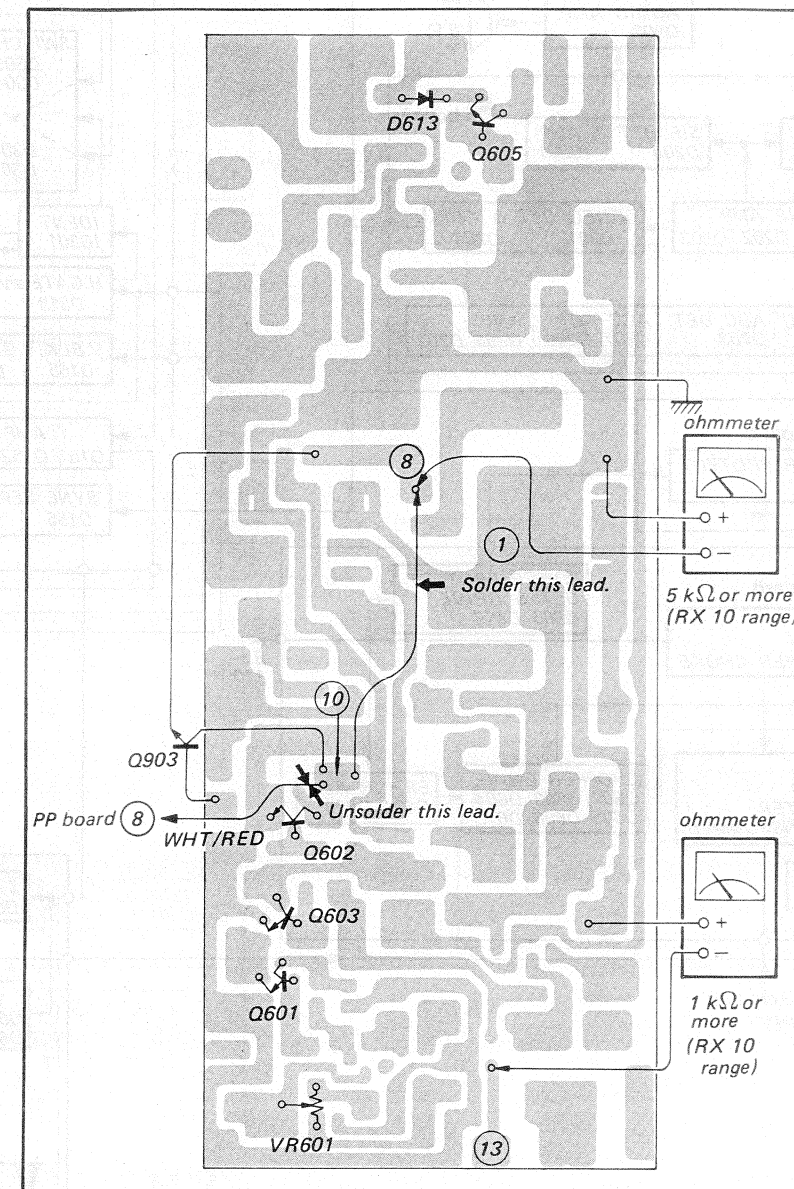
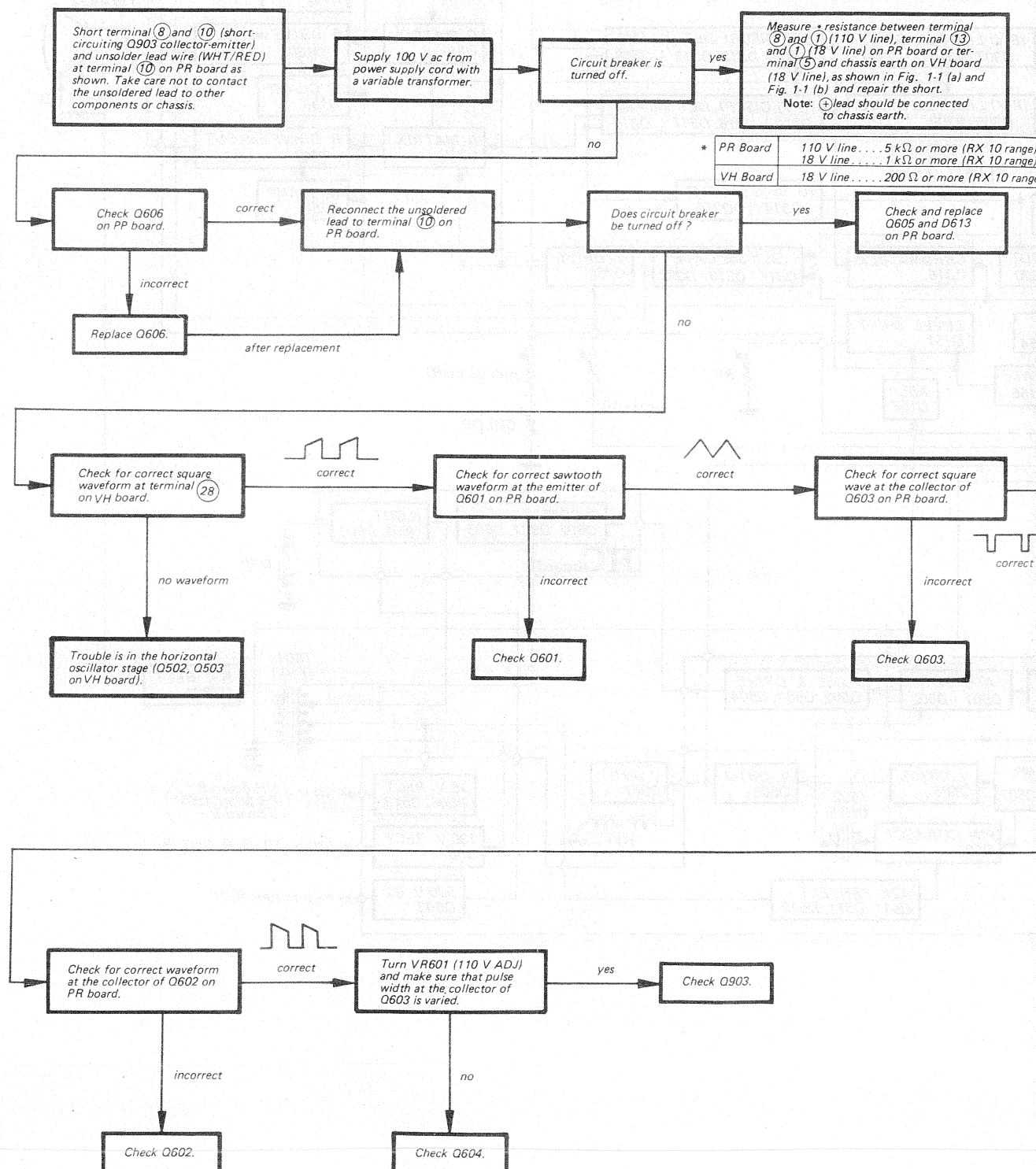


Fig. 1-1 (a). Check points on PR board

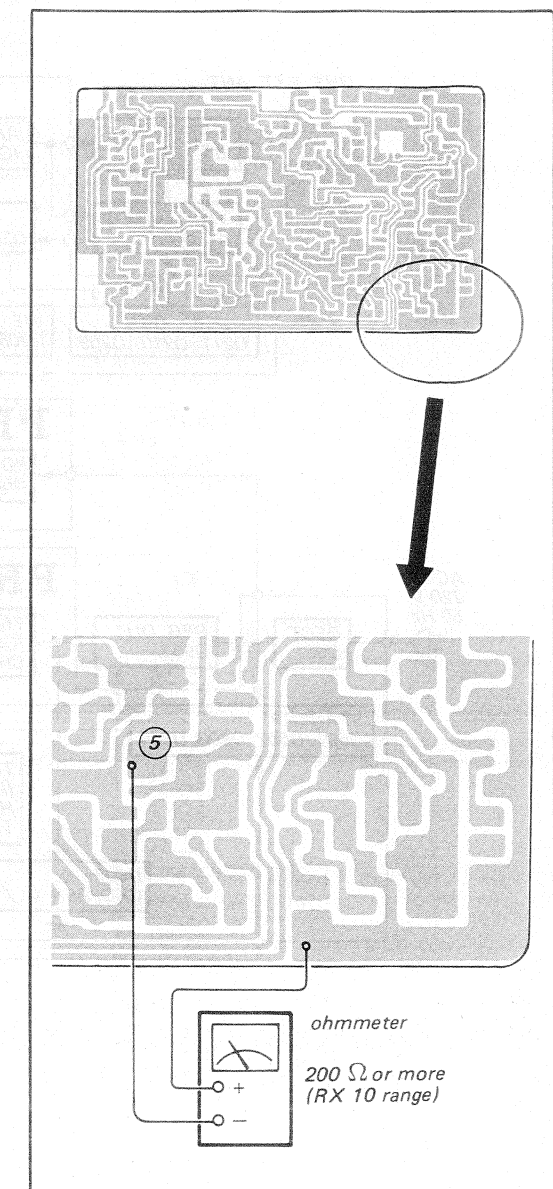


Fig. 1-1 (b). Check point on VH board

1-3. EXTERNAL VIEWS

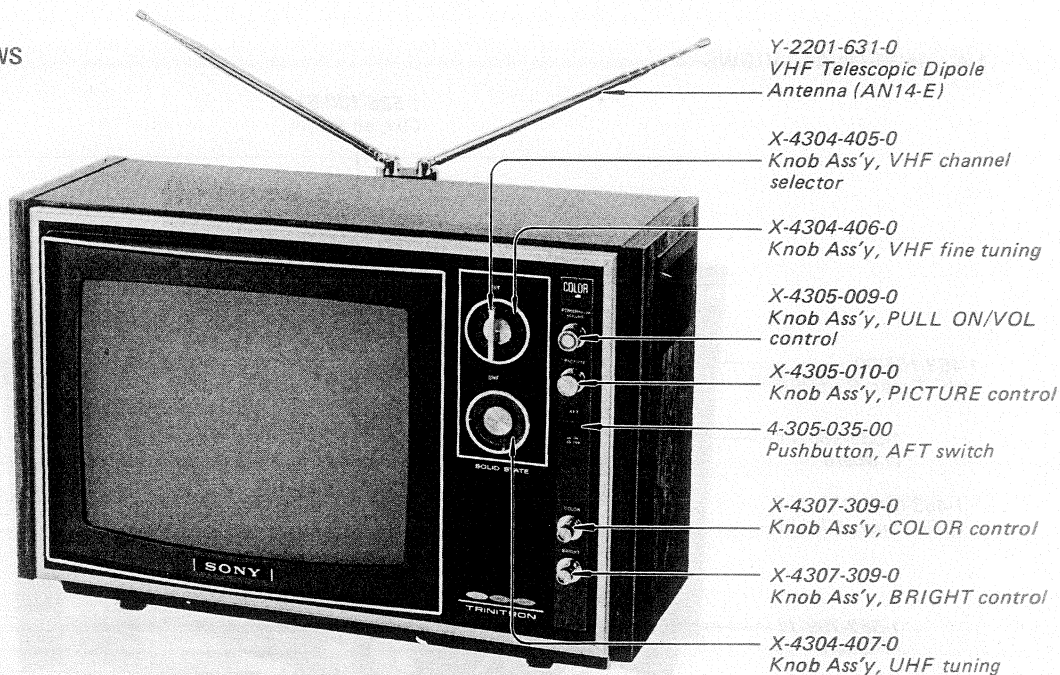


Fig. 1-2. Front View

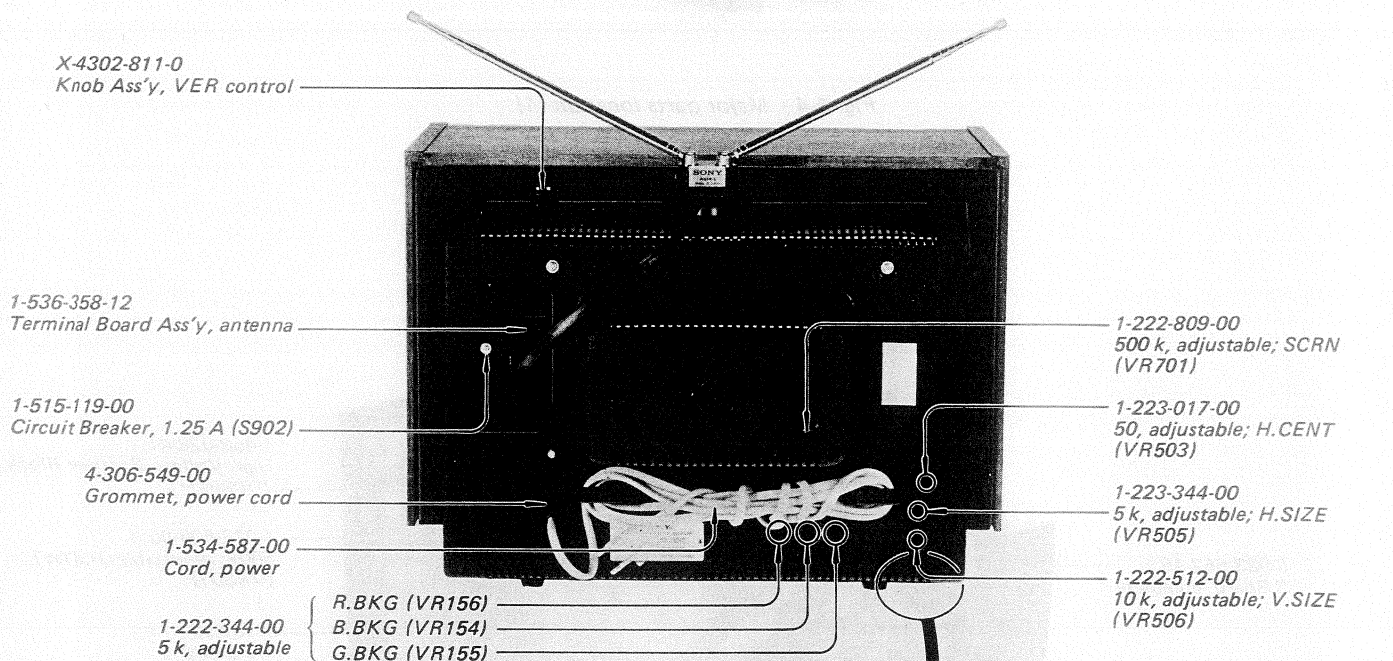
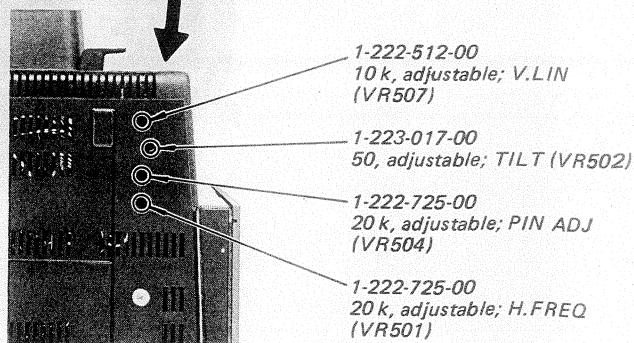


Fig. 1-3. Rear View



1-4. INTERNAL VIEWS

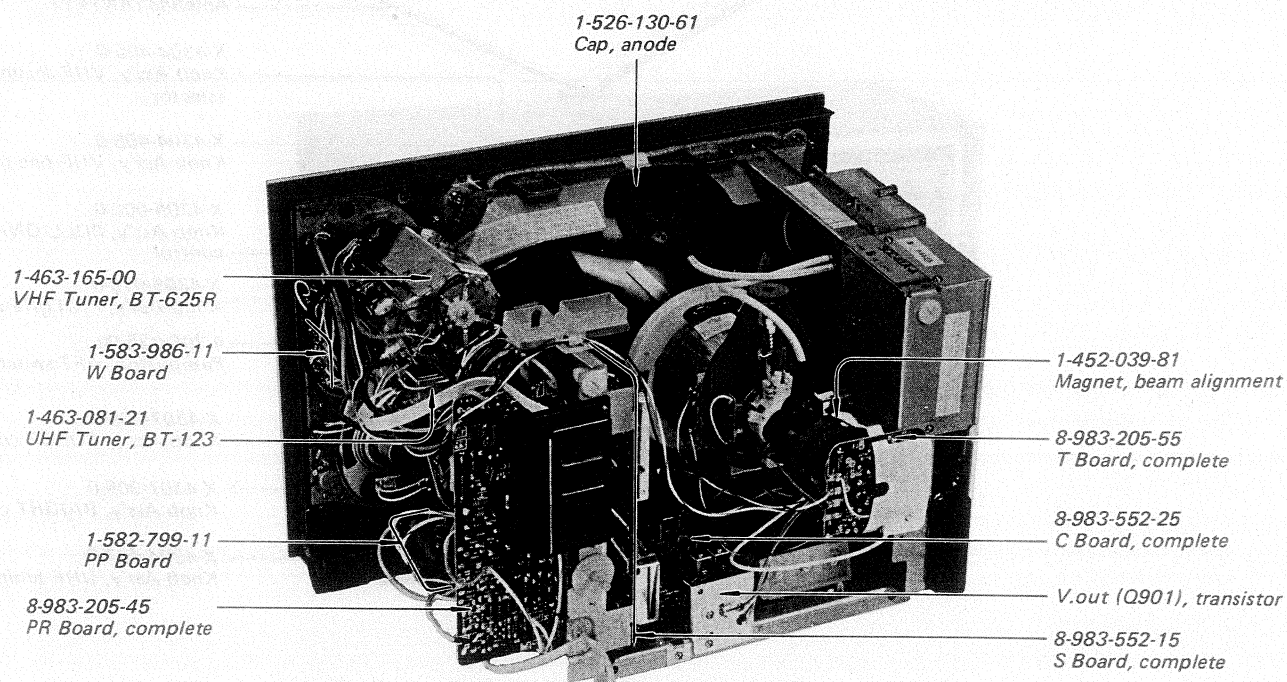


Fig. 1-4. Major parts location (1)

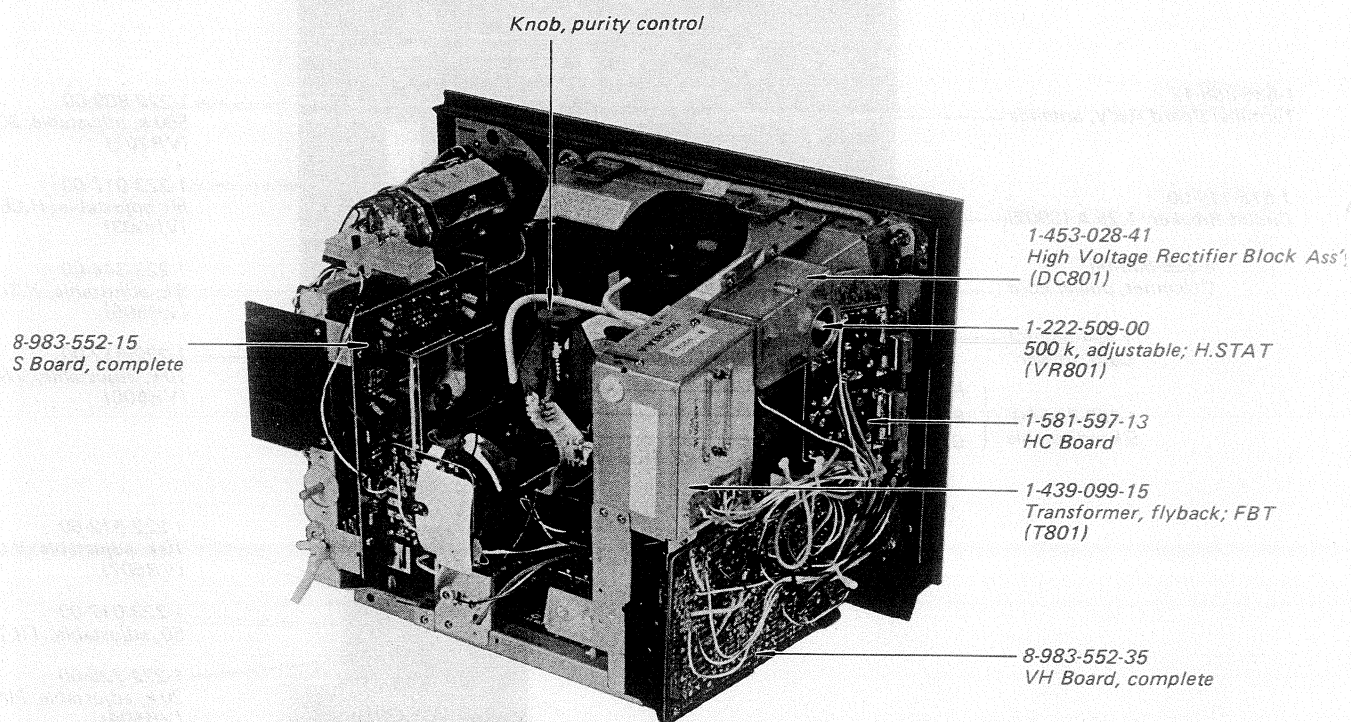


Fig. 1-5. Major parts location (2)

SECTION 2

DISASSEMBLY AND REPLACEMENT

Note: All screws in this set are Phillips (cross recess) type unless otherwise noted.

2-1. CABINET REMOVAL

Circled numbers indicate sequence.

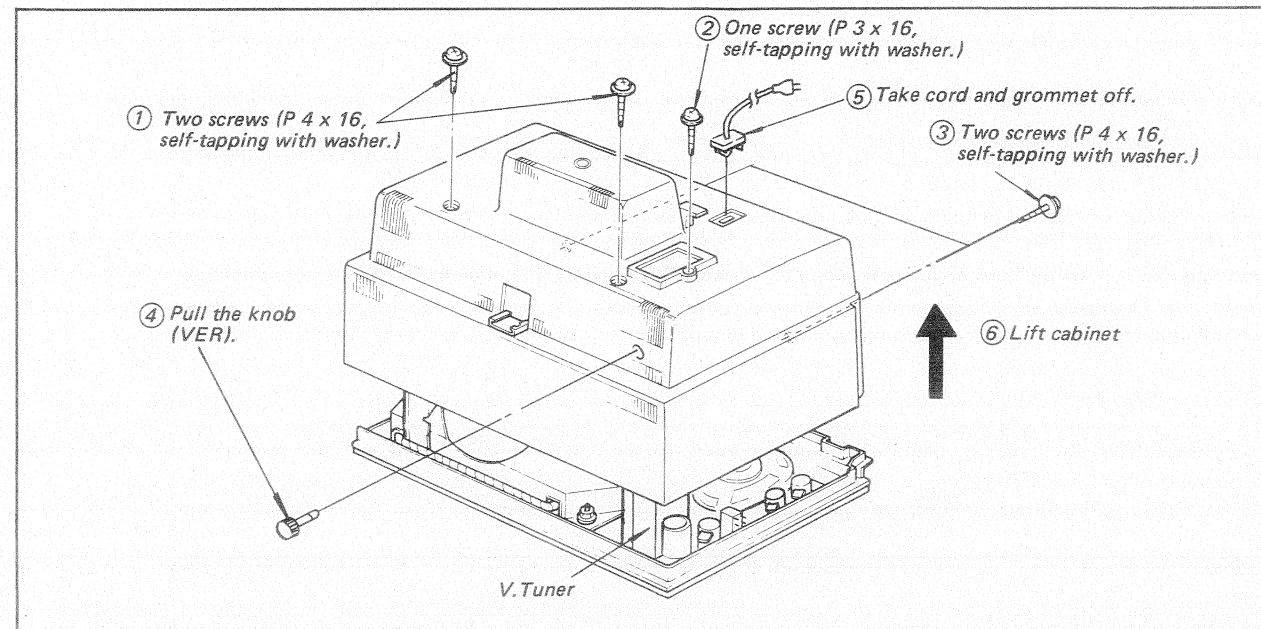


Fig. 2-1. Cabinet Removal

2-2. VHF, UHF TUNERS REMOVAL AND UHF TUNER DIAL CALIBRATION

Remove cabinet as described in 2-1, and then proceed to following steps. Circled numbers indicate sequence.

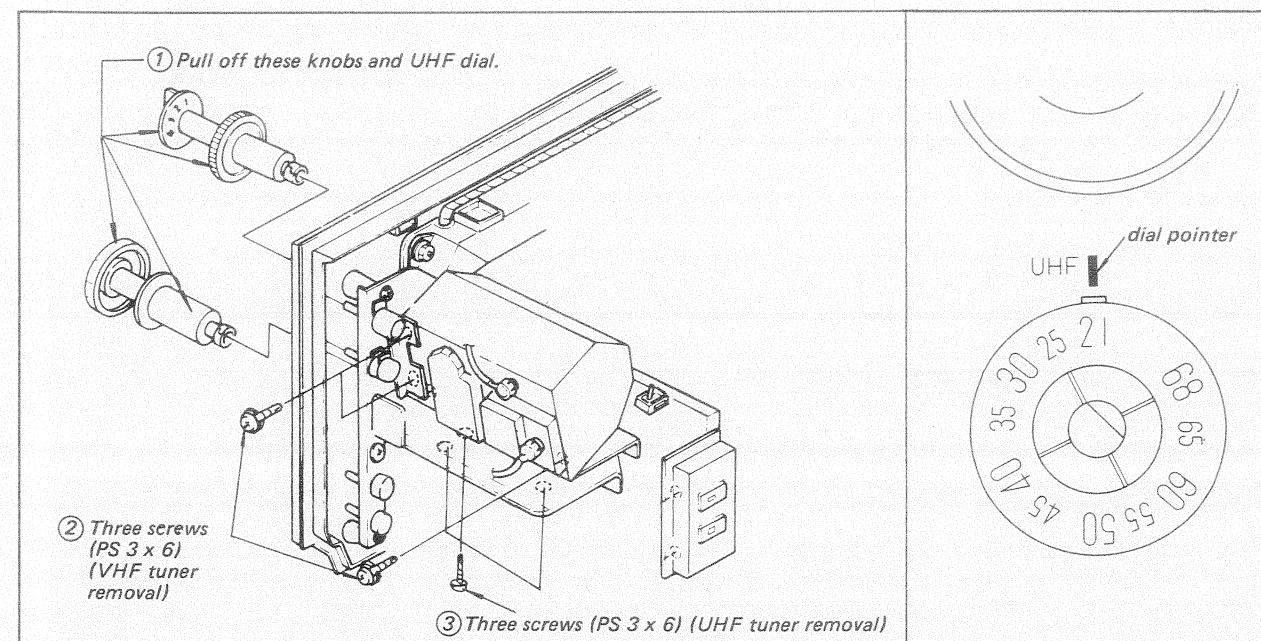


Fig. 2-2. Tuners removal and UHF dial calibration

[UHF Dial Calibration]

Turn UHF tuner shaft counterclockwise as far as UHF dial will not turn any more, and then set the dial to the position where channel digit "21" meets the pointer as shown.

2-3. SWITCHES, CONTROLS AND DIAL LAMP REPLACEMENT

Remove cabinet as described in 2-1 first, and then take out the tuner chassis where controls, switches and dial lamps are mounted. Circled numbers indicate sequence. This enables replacement of defective components.

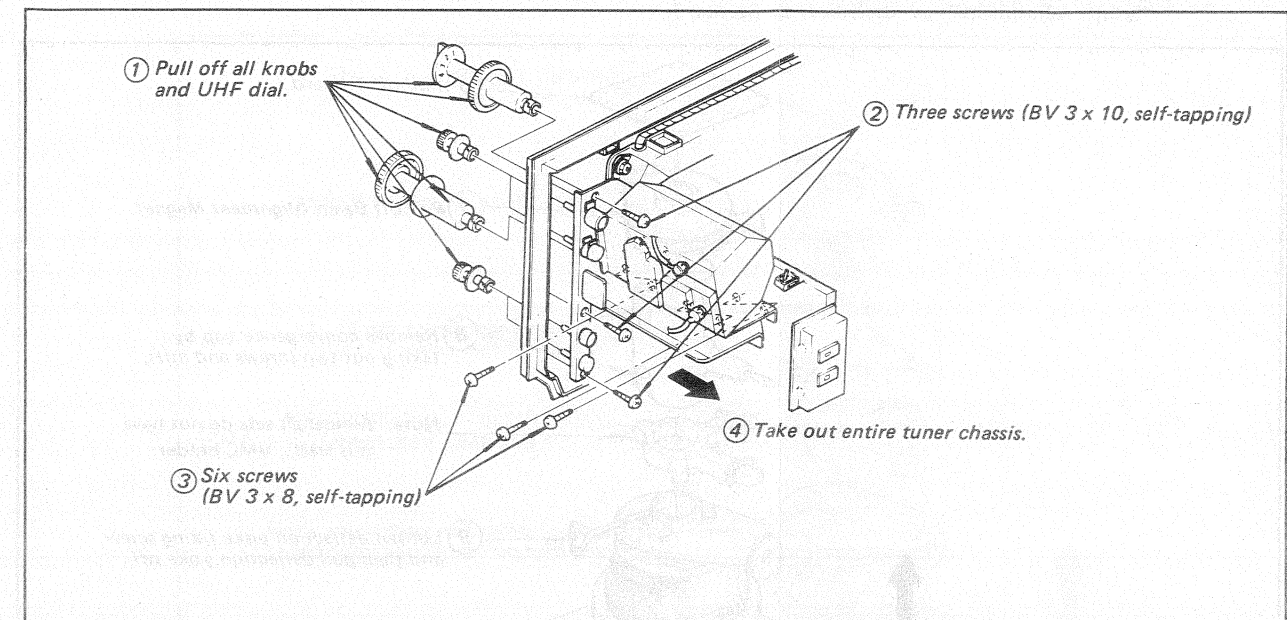


Fig. 2-3. Tuner chassis removal

2-4. SPEAKER REMOVAL

Remove cabinet as described in 2-1, and then proceed to following steps. Circled numbers indicate sequence.

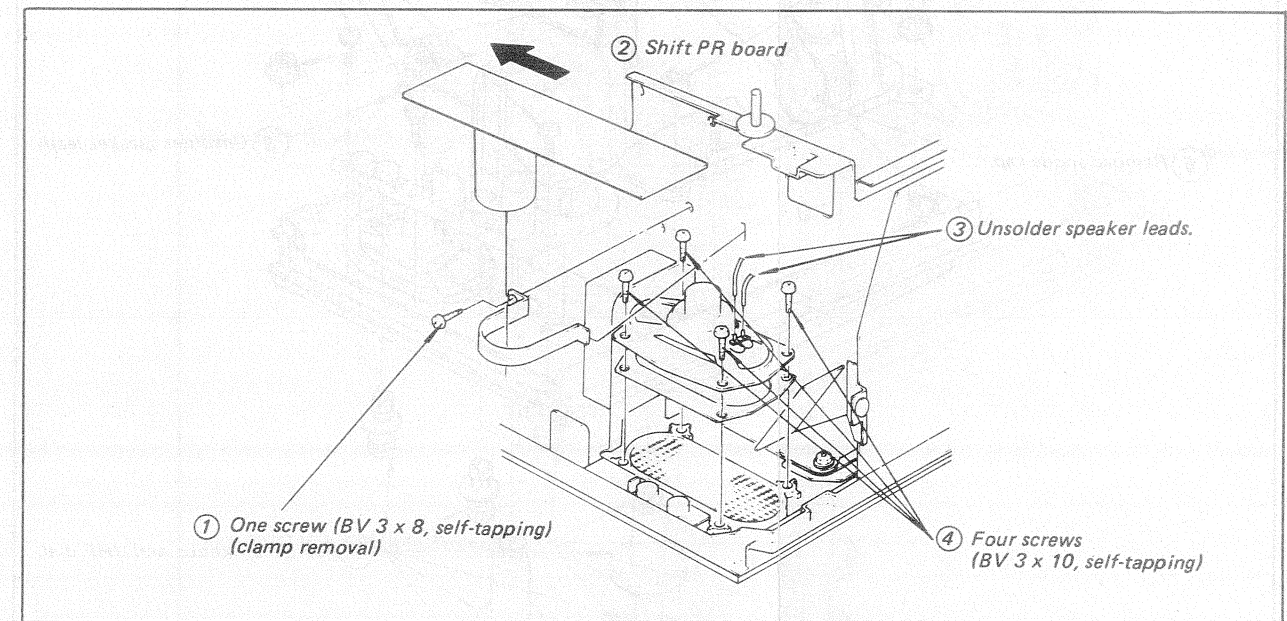


Fig. 2-4. Speaker removal

2-5. PICTURE TUBE REMOVAL

Remove cabinet as described in 2-1, and then proceed to following steps. Circled numbers indicate sequence.

Note: Place the set on the protective sheet with the picture tube face down. After completing the replacement, proceed to "Setup Adjustment" as described in Section 3.

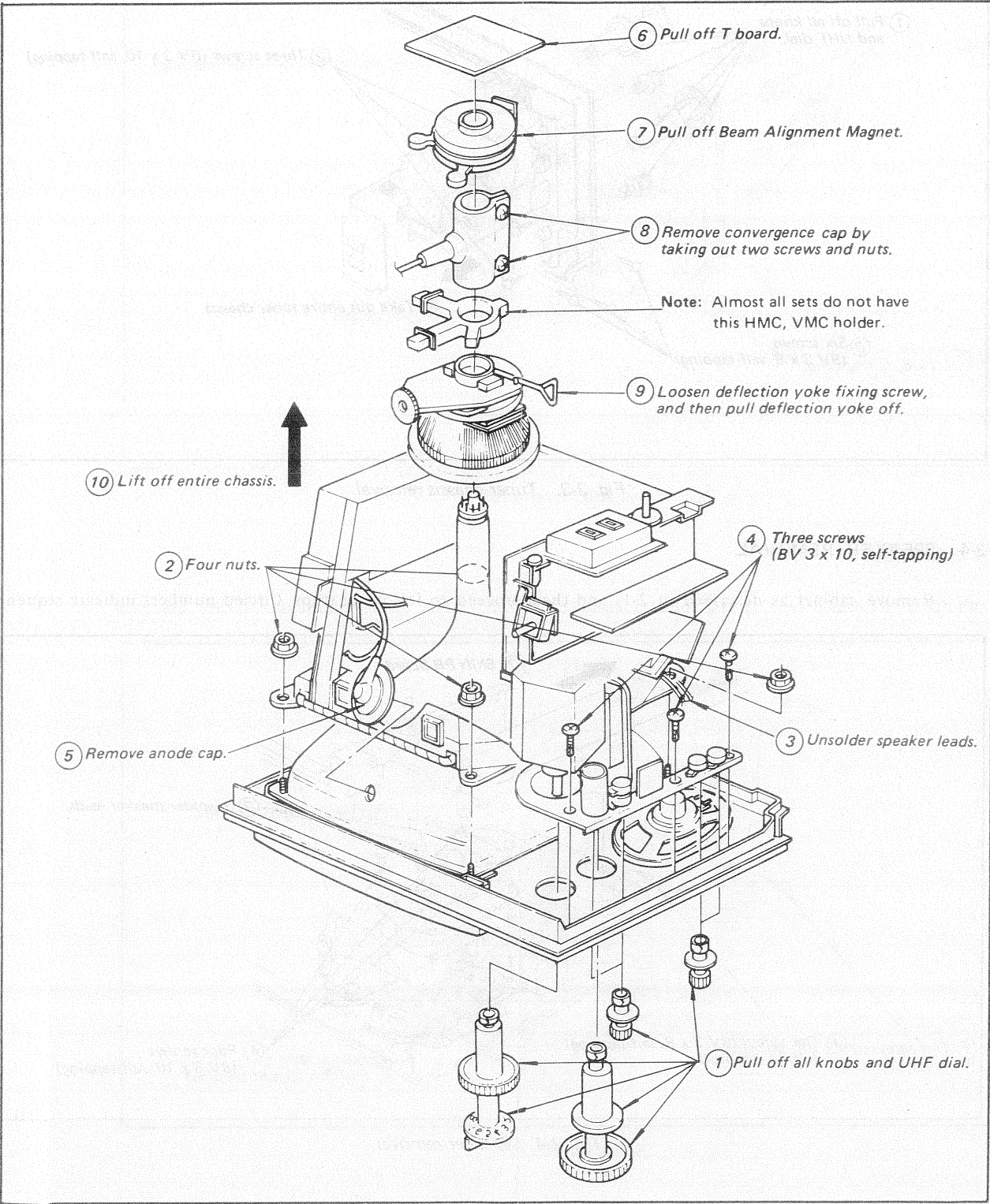


Fig. 2-5. Picture tube removal

MEMO

SECTION 3

SETUP ADJUSTMENTS

The following adjustments should be made when a complete realignment is required or a new picture tube is installed.

Control and switch should be set as follows:

BRT controls . . . fully clockwise
AFT switch ON

3-1. BEAM LANDING ADJUSTMENTS

Receive no signal.

Before starting this adjustment, demagnetize the whole screen securely with degausser.

1. Loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Adjust purity control to center the slide between two projections as shown in Fig. 3-1.
4. Slide deflection yoke forward as far as it will go.
5. Disconnect BLU and GRN lead wires on the T board.
6. Turn purity control to center vertical red band as shown in Fig. 3-2.
7. Slide deflection yoke backward for a uniform red screen.
8. Check green and blue rasters for uniformity. Repeat the Steps 5, 6 and 7.
To get a uniform green screen
..... Connect green lead on the T board.
Disconnect red and blue leads.
- To get a uniform blue screen
..... Connect blue lead on the T board.
Disconnect red and green leads.
9. After this checks, connect the RED, BLU and GRN leads.
10. Check if mislanding appears at corners a ~ d as shown in Fig. 3-3. If mislanding is observed, correct it as shown in Fig. 3-4.
11. Tighten the deflection yoke screw and then put the deflection yoke spacers.

3-4. WHITE BALANCE ADJUSTMENTS

Receive the crosshatch pattern.

1. Turn BRT and PICTURE controls fully counter-clockwise.
2. Turn VR153 (R.DRIVE), VR151 (B.DRIVE) and VR152 (G.DRIVE) fully clockwise.

Perform the adjustments in order as follows:

1. Beam Landing Adjustments
2. Convergence Adjustments
3. White Balance Adjustments

Note: Test Equipment Required

1. Color-bar/pattern generator
2. Degausser

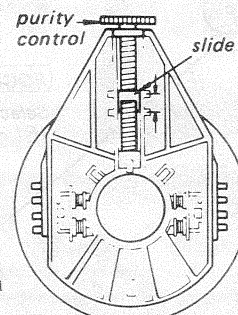


Fig. 3-1.

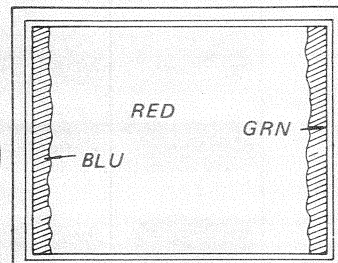


Fig. 3-2.

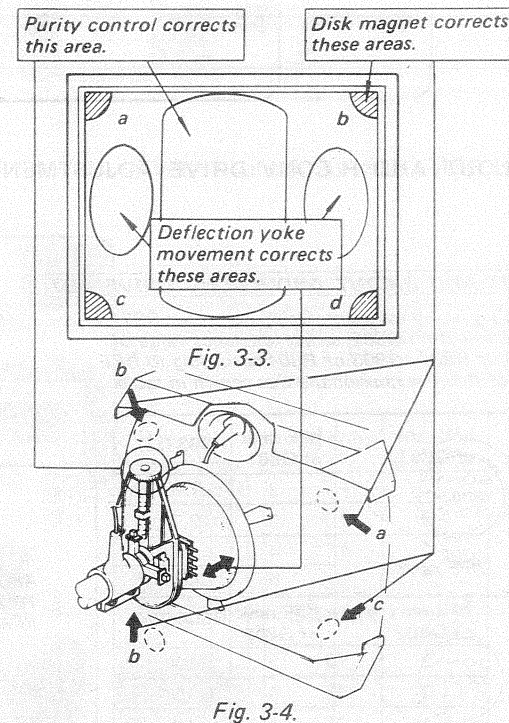


Fig. 3-3.

3. Set VR156 (R.BKG), VR154 (B.BKG) and VR155 (G.BKG) to mechanical center.

4. Turn VR701 (SCRN) slowly to obtain a faintly visible crosshatch. Memorize the colour which becomes visible first by turning VR701. Do not touch a BKG control of this colour signal.
5. Adjust the other two BKG controls for best white balance (neutral gray) at faintly visible screenlight.

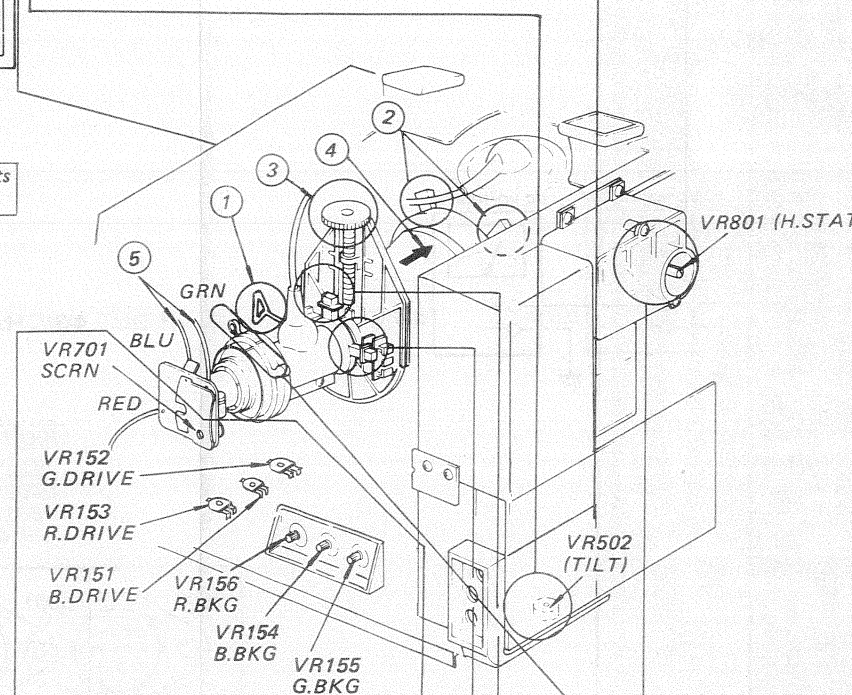
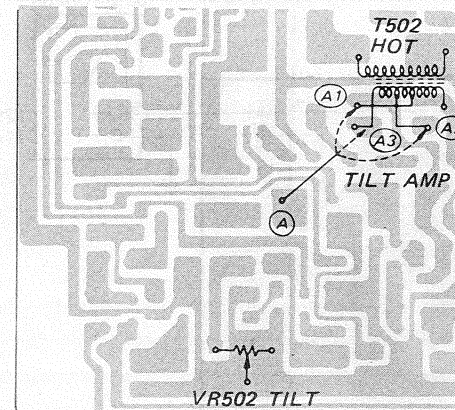
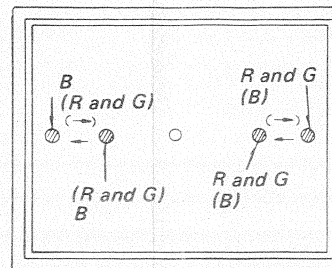
3-3. DYNAMIC CONVERGENCE ADJUSTMENTS

Receive the dot pattern.

1. Misconvergence at Both Sides of Screen

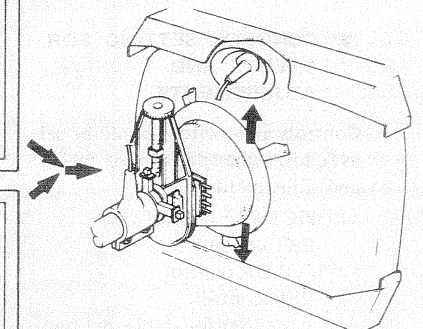
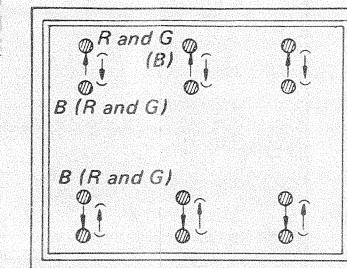
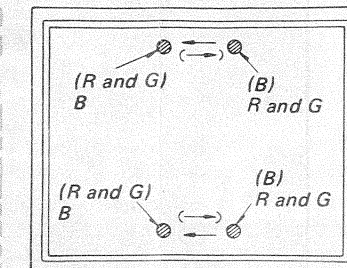
- (1) Adjust VR502 (TILT). (2) Select one of A1 ~ A3 for best convergence.

If misconvergence persists, perform Step (2).



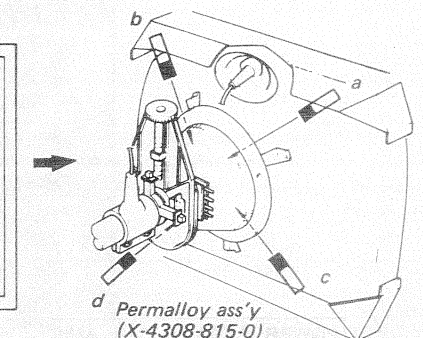
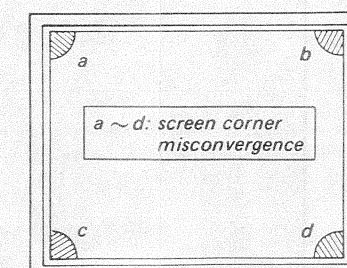
2. Top and Bottom Misconvergence

Raise or lower the front edge of the deflection yoke.

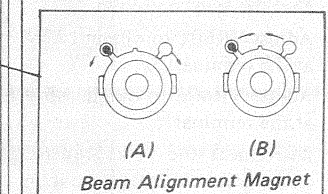
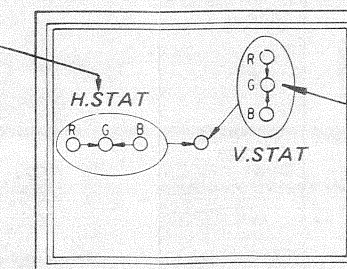


3. Screen-corner Convergence

Affix a permalloy ass'y corresponding to the misconverged areas.



3-2. HORIZONTAL AND VERTICAL STATIC CONVERGENCE ADJUSTMENTS



VMC magnet movement corrects insufficient H.static convergence.

HMC magnet movement corrects insufficient V.static convergence.

SECTION 4

CIRCUIT ADJUSTMENTS

4-1. POWER REGULATOR ADJUSTMENTS

Note:

(1) TEST EQUIPMENT REQUIRED

1. Oscilloscope
2. Voltmeter (VOM)
3. Color-bar/pattern generator

(2) CONTROL SETTING FOR CHECKS AND ADJUSTMENTS

Controls and switch should be set as follows when performing checks and adjustments.

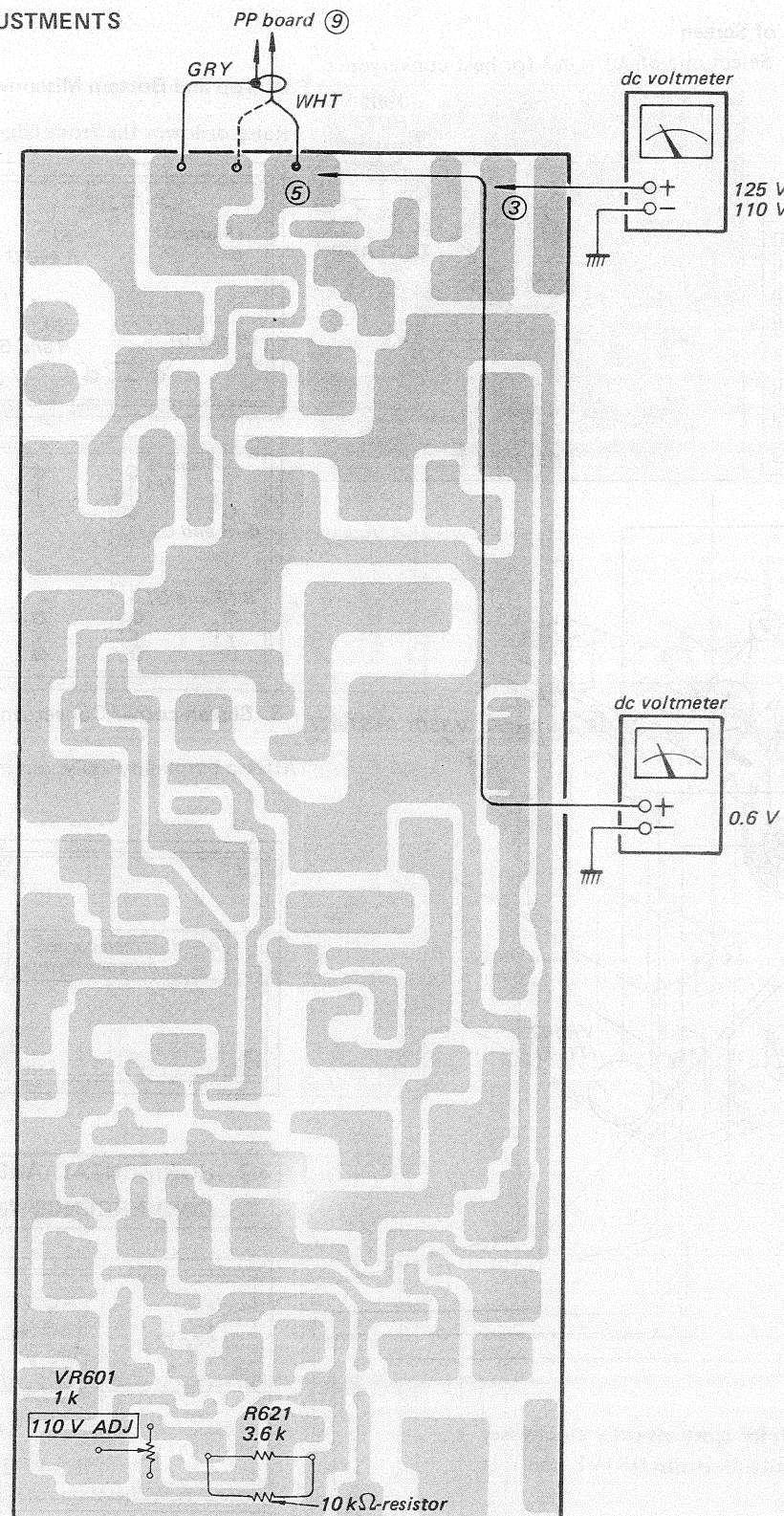
- PICTURE control
BRT control
COLOR control
VER control
..... Set for stable picture
AFT switch
..... ON (Depressed)

(3) RECEIVING SIGNAL

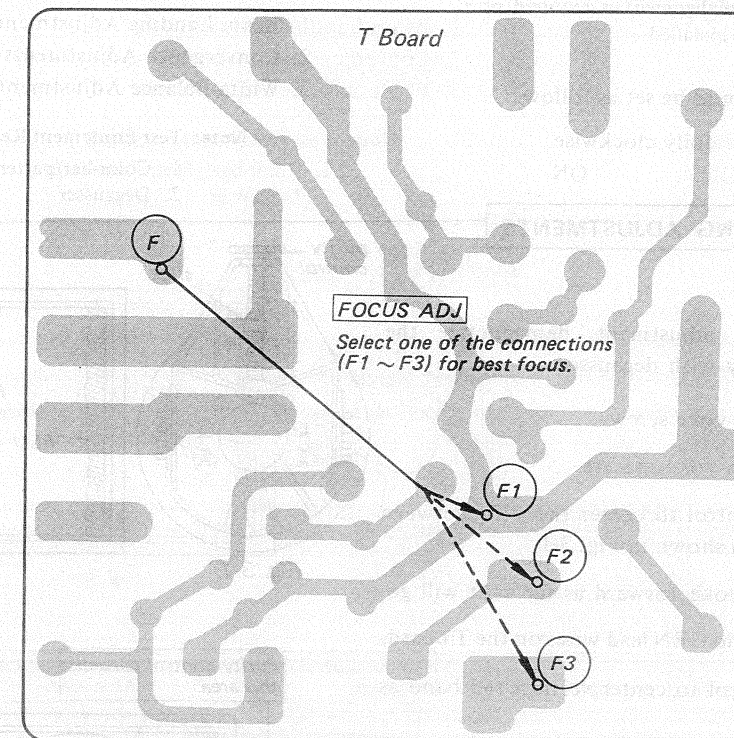
When performing these adjustments, receive a crosshatch signal, a color-bar signal or an off-the-air signal.

POWER REGULATOR ADJ.

1. Confirm 220 V power voltage.
2. Connect a 10 k Ω -resistor as shown in figure.
3. Disconnect the white lead at the terminal ⑤ and then connect the lead to ground.
4. Adjust VR601 to obtain 125 V at the terminal ③.
5. Adjust VR602 to obtain 0.6 V at the terminal ⑤.
6. Disconnect the 10 k Ω -resistor and readjust VR601 to obtain 110 V at the terminal ③.
7. Reconnect the white lead.



4-2. FOCUS ADJUSTMENT

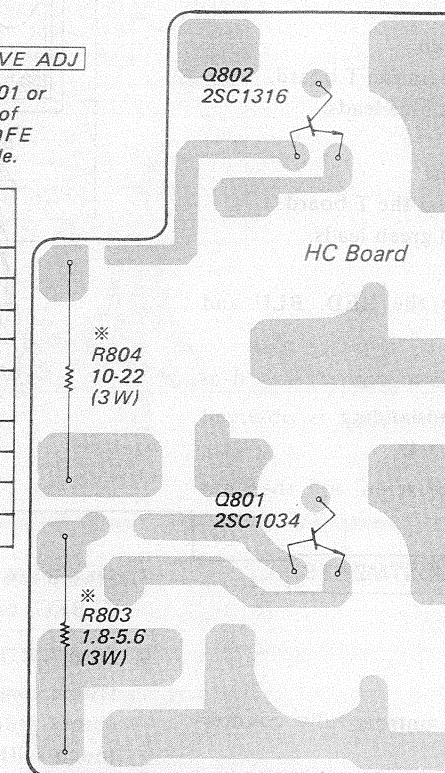


4-3. H.OUT AND H.CONV DRIVE ADJUSTMENT

H.OUT AND H.CONV DRIVE ADJ

When replacing transistor Q801 or Q802, select resistance value of R803 or R804 according to hFE rank of them as shown in table.

Q801	hFE rank of Q801	R803 (Ω)
	2	1.8
	3	2.7
	4	4.7
	5	5.6
Q802	hFE rank of Q802	R804 (Ω)
	2	10
	3	15
	4	18
	5	22

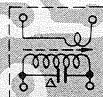
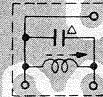


4-4. ADJUSTMENTS ON S BOARD

SIF ADJ

1. Adjust T210 for maximum clear sound.
2. Temporarily connect 100k-ohm variable resistor as shown in figure.
3. Set 100k-ohm variable resistor to position where noise sound is faintly heard.
4. Adjust T209 for maximum clear sound.

T210 SIFT-3

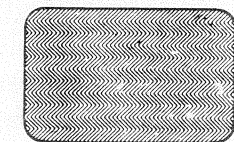


T209 SIFT-1

T212 AFT-T4

AFT ADJ

1. Set AUTO switch OFF.
2. Turn VHF fine tuning knob clockwise for a 2.07 MHz beat.

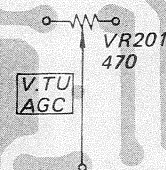


2.07 MHz beat

3. Turn VHF fine tuning knob counter-clockwise and set it to point where 2.07 MHz beat just disappears.
4. Set AUTO switch ON. If 2.07 MHz beat appears, set T212 to point where 2.07 MHz beat just disappears.

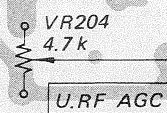
VHF TUNER AGC ADJ

1. Set VR201 to position where snow-noise picture just disappears.
2. Check all VHF channels for noise-free reception.



UHF TUNER AGC ADJ

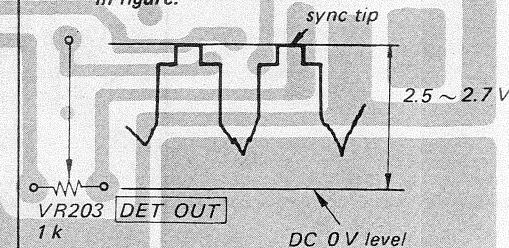
1. Set VR204 to position where snow-noise picture just disappears.
2. Check all UHF channels for noise-free reception.



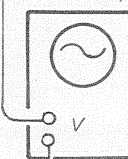
100 k

DET OUT ADJ

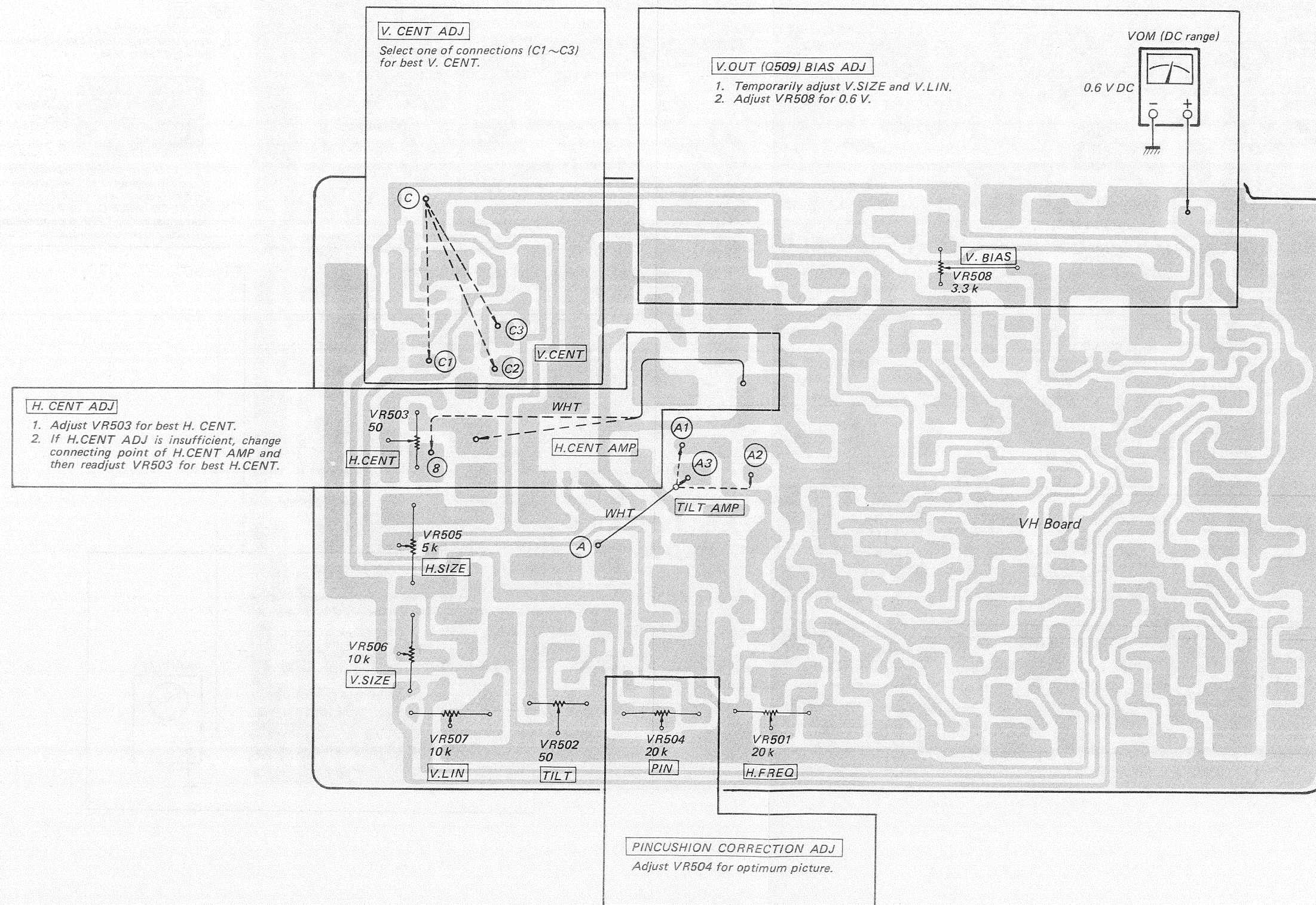
1. Connect an oscilloscope as shown in figure.
2. Adjust VR203 for 2.5 ~ 2.7 Vp-p as shown in figure.



oscilloscope

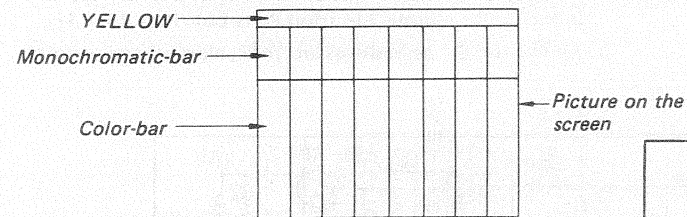


4-5. ADJUSTMENTS ON VH BOARD



4-6. ADJUSTMENTS ON C BOARD

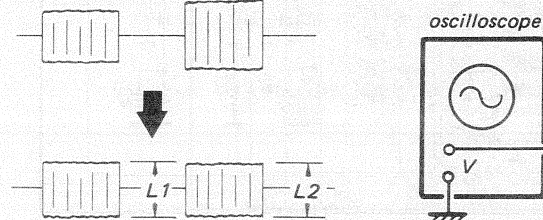
Note: 1. Receive the color-bar signal.



2. Control settings
Turn BRT and PICTURE controls to obtain optimum picture and turn COLOR control fully clockwise.

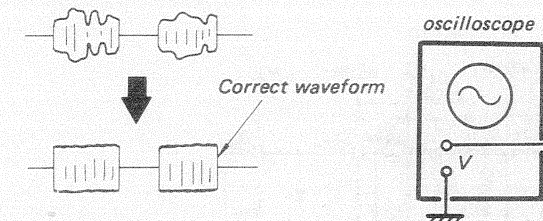
LEVEL ADJ (between direct channel and delayed channel)

1. Connect an oscilloscope.
2. Adjust VR301 to make L1 equal L2.



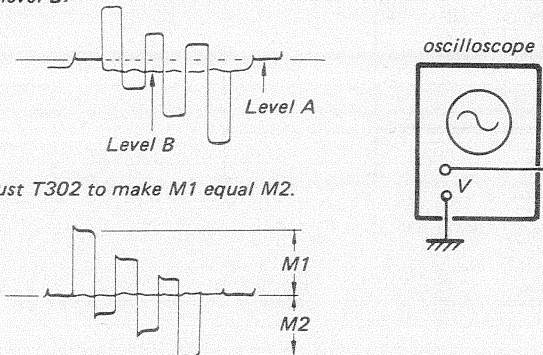
BELL CHARACTERISTIC ADJ

1. Connect an oscilloscope.
2. Adjust L302 to obtain a correct waveform.



B-Y DISCRIMINATOR ADJ

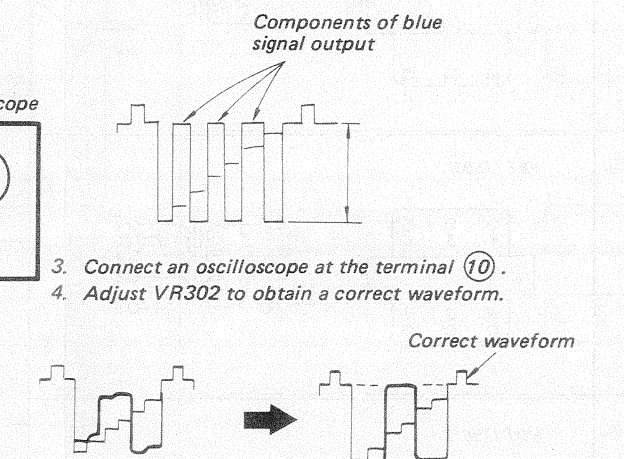
1. Connect an oscilloscope.
2. Adjust T303 to make the level A coincide with the level B.



4. Repeat Steps 2 and 3 to obtain optimum waveform.

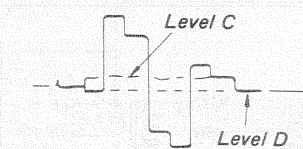
B-Y LEVEL ADJ

1. Connect an oscilloscope at the terminal ⑪.
2. Turn COLOR control so that components of blue signal output become the same.

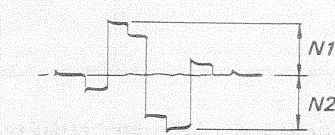


R-Y DISCRIMINATOR ADJ

1. Connect an oscilloscope.
2. Adjust T305 to make the level C coincide with the level D.



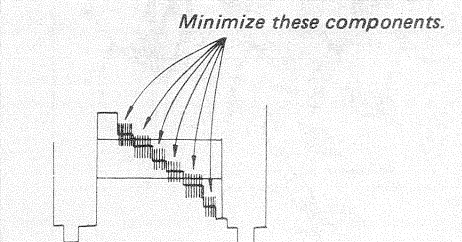
3. Adjust T304 to make N1 equal N2.



4. Repeat Steps 2 and 3 to obtain optimum waveform.

Y TRAP ADJ

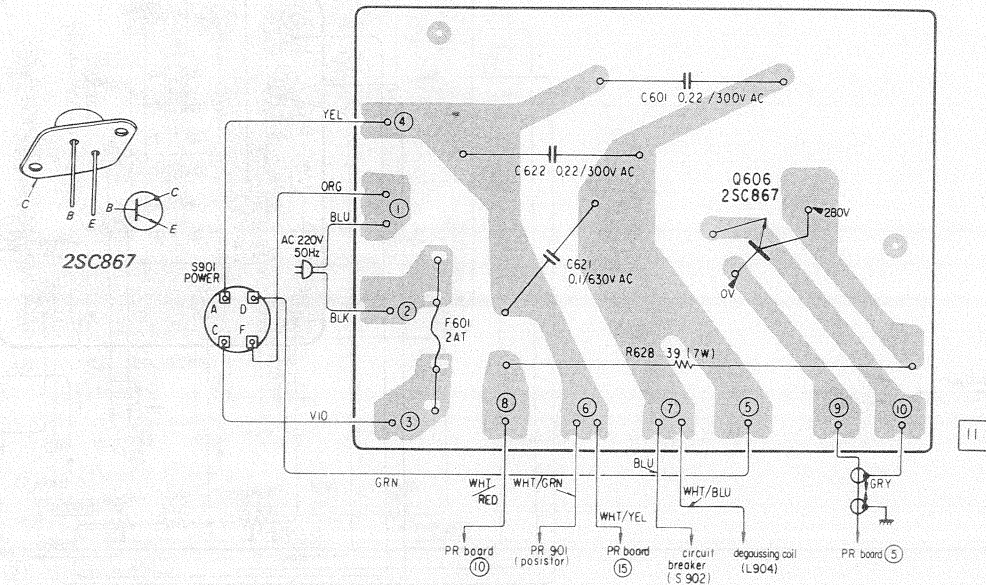
1. Connect an oscilloscope.
2. Adjust L153 and L154 to minimize these components shown below.



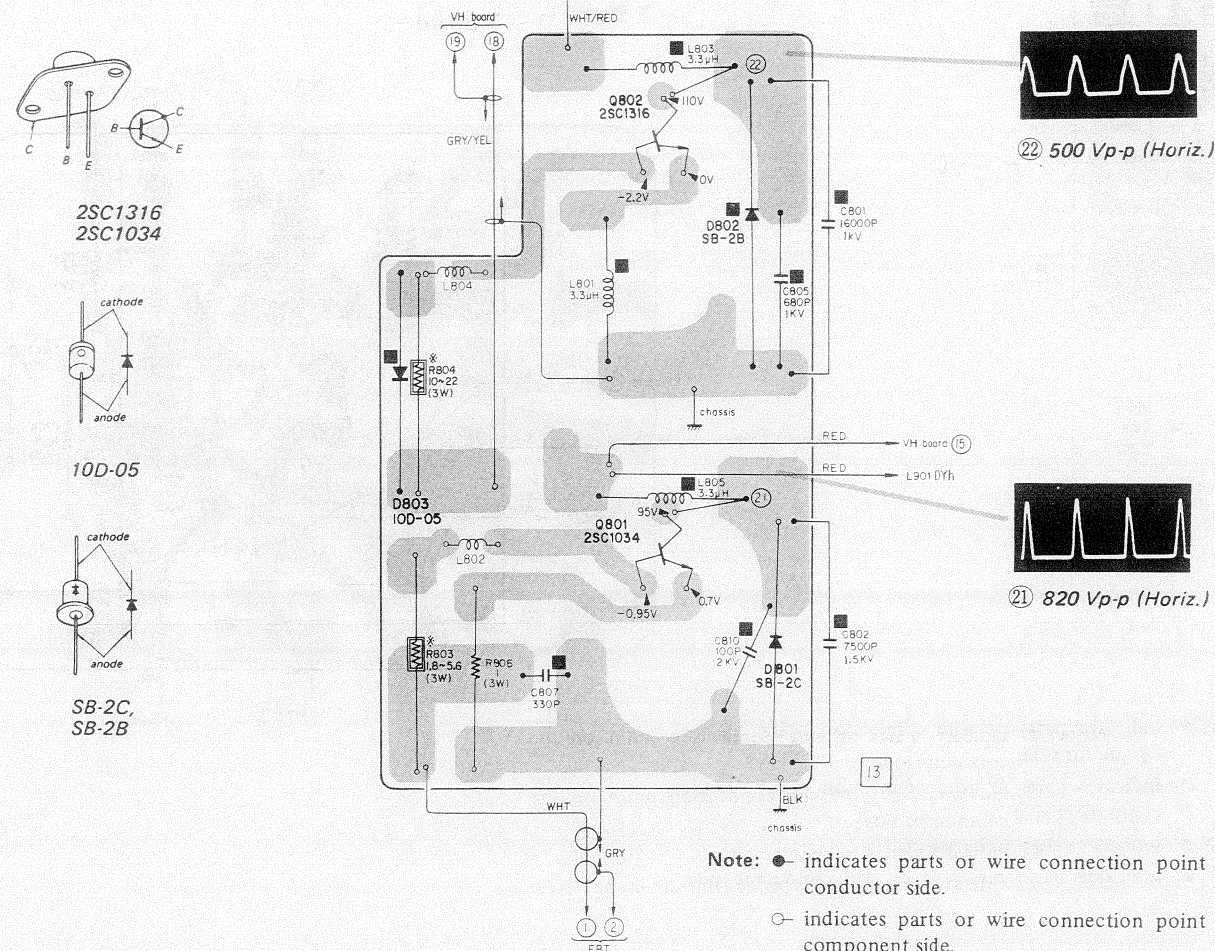
5-4. MOUNTING DIAGRAMS — PP and HC Boards —

— Conductor Side —

— PP Board —



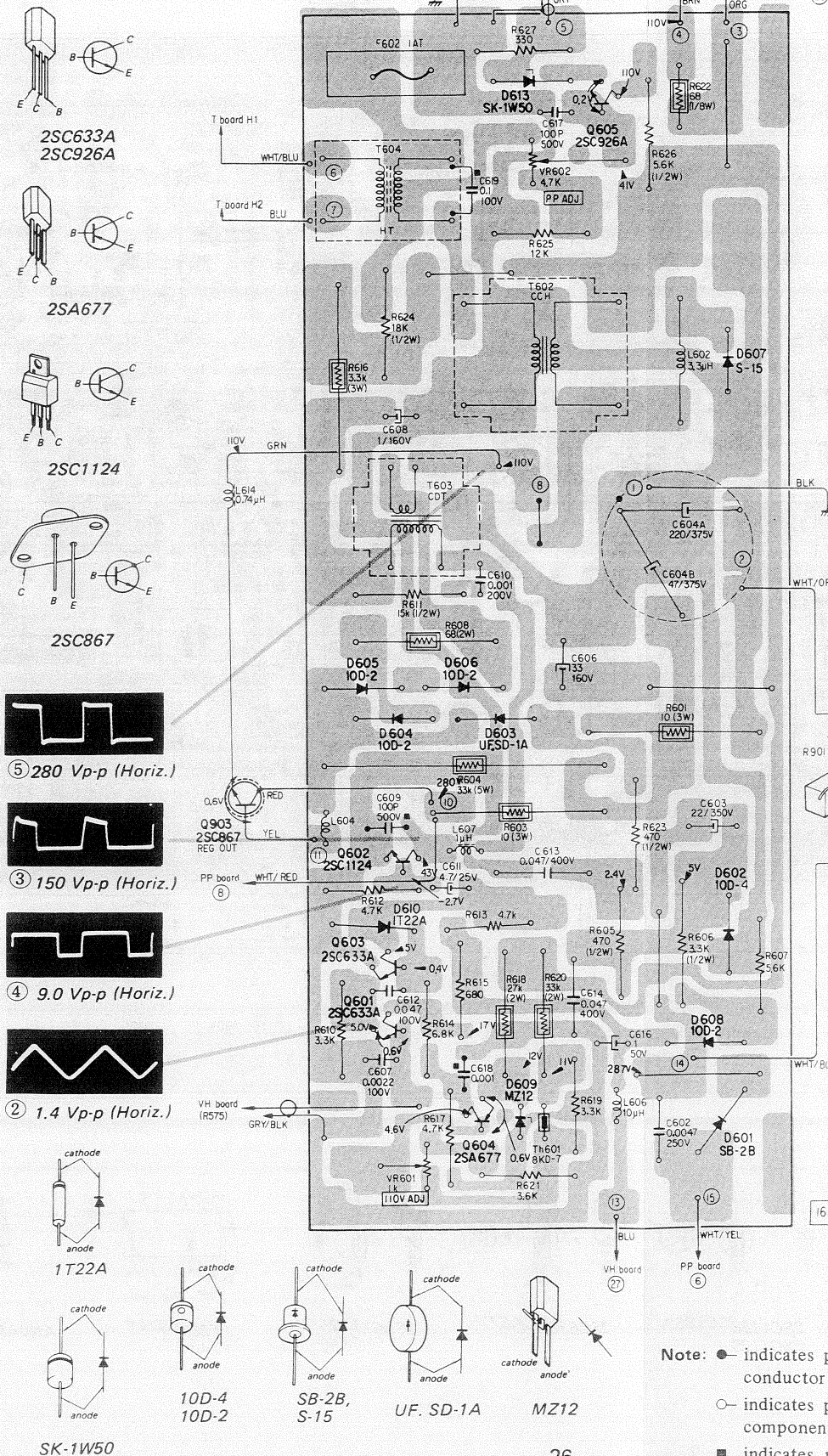
— HC Board —



Note: ● indicates parts or wire connection point on the conductor side.
 ○ indicates parts or wire connection point on the component side.
 * indicates values to be selected.
 ■ indicates parts mounted on the conductor side.

5-5. MOUNTING DIAGRAM — PR Board —

— Conductor Side —



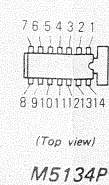
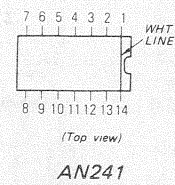
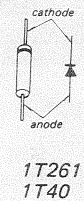
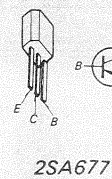
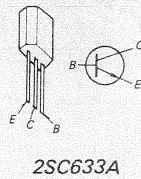
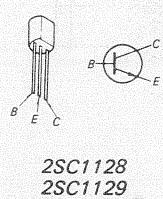
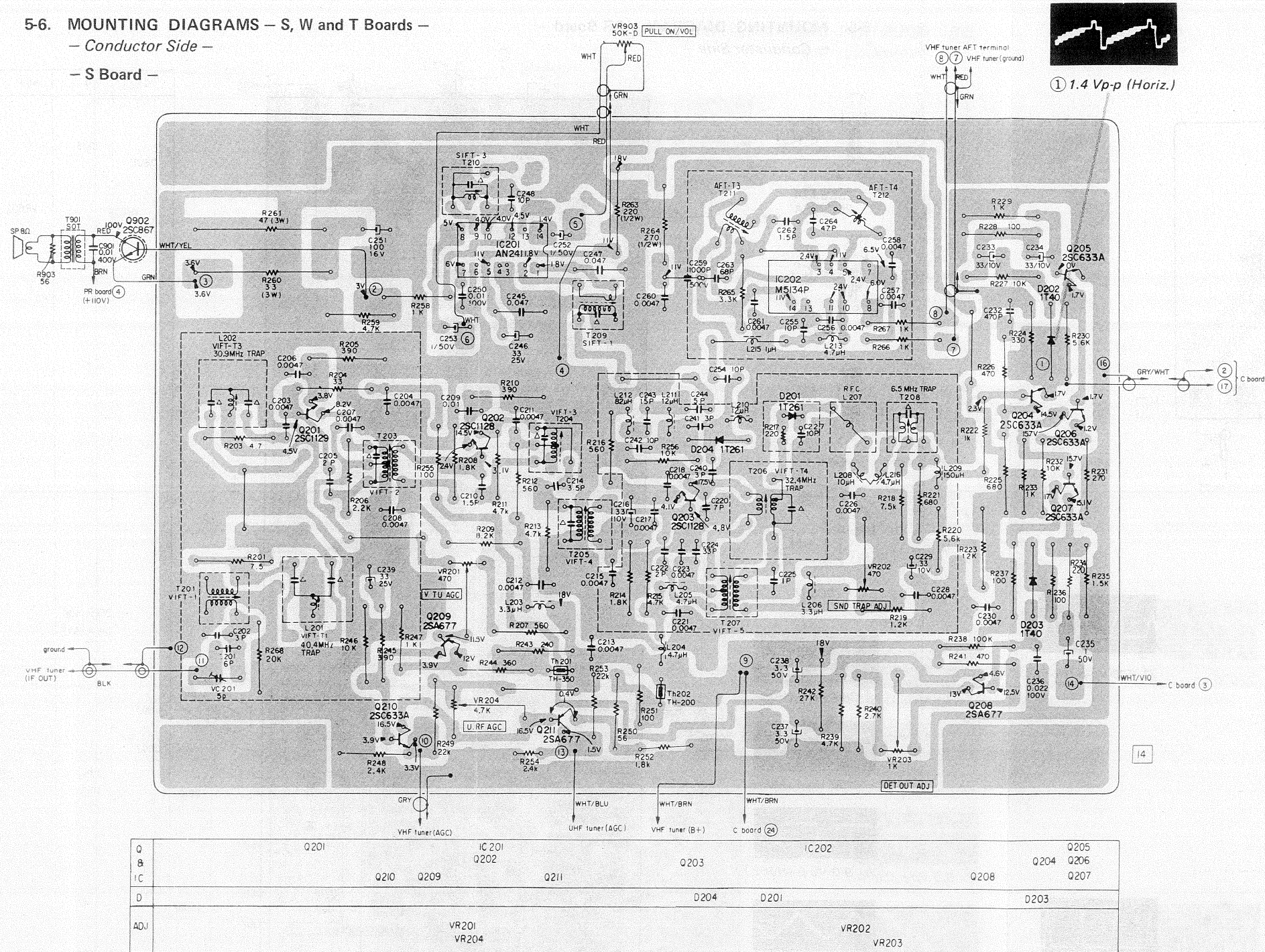
Note: ● indicates parts or wire connection point on the conductor side.
 ○ indicates parts or wire connection point on the component side.
 ■ indicates parts mounted on the conductor side.

Q	D	ADJ
Q605	D613	VR602
	D607	
	D605, D606	
	D604, D603	
	D602	
	D610	
Q603		
Q601	D608	
	D609	
Q604	D601	VR601

5-6. MOUNTING DIAGRAMS — S, W and T Boards —

— Conductor Side —

— S Board —



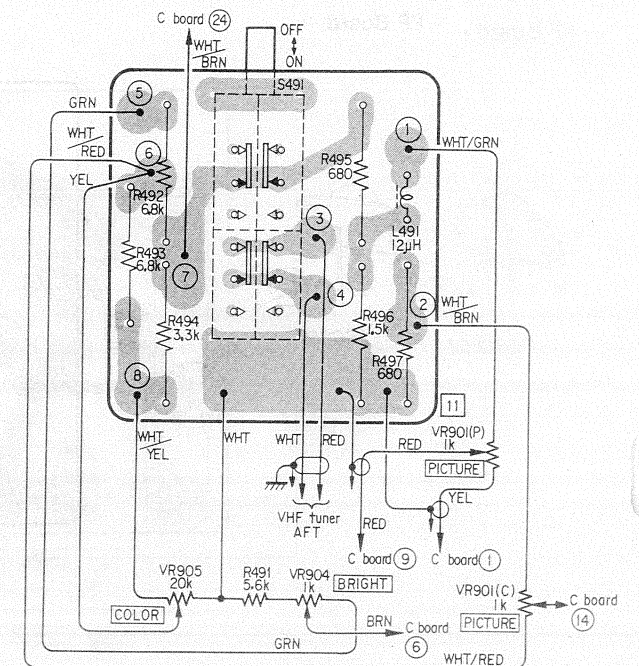
Note: ● indicates parts or wire connection point on the conductor side.

○ indicates parts or wire connection point on the component side.

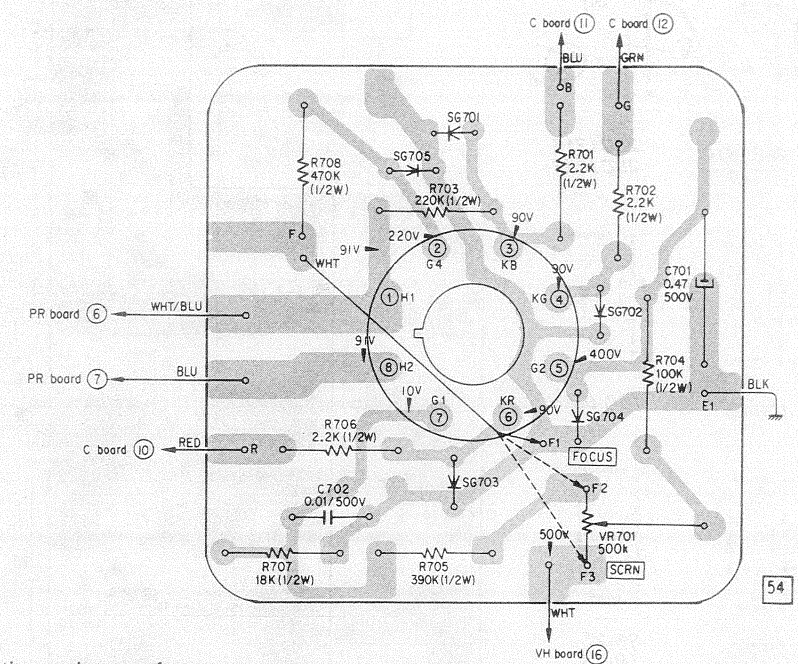
※ indicates values to be selected.

■ indicates parts mounted on the conductor side.

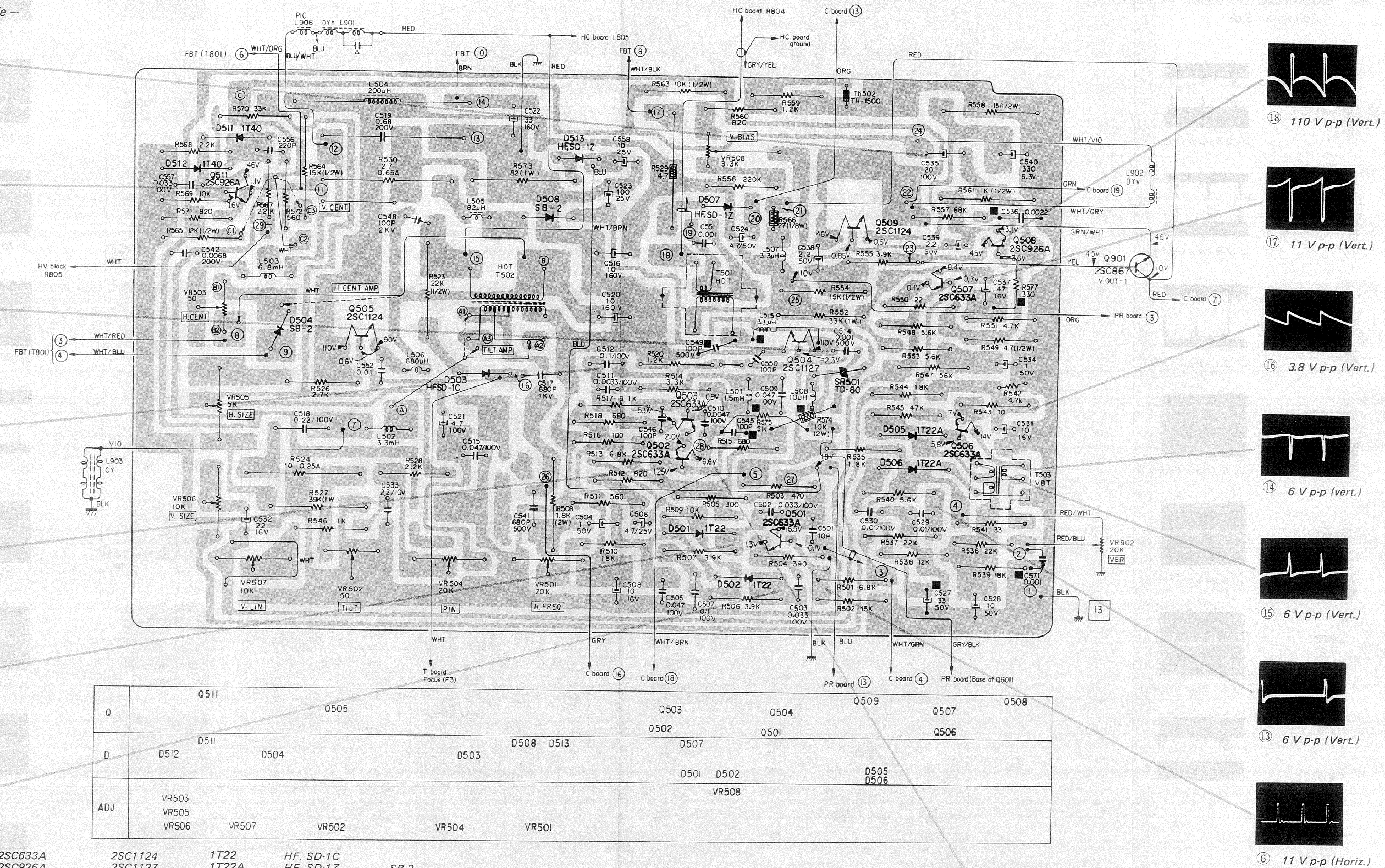
— W Board —



— T Board —

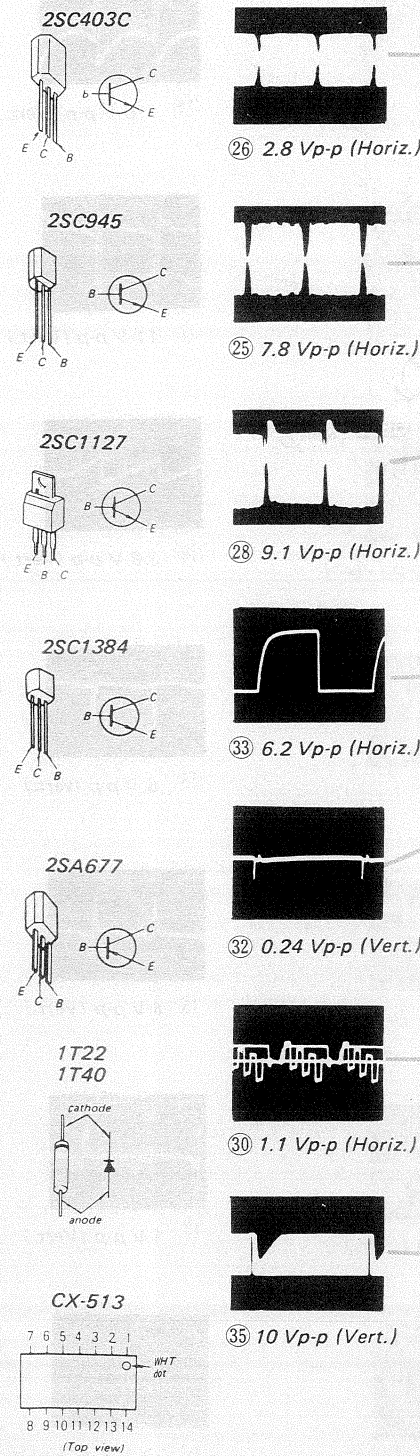


5-7. MOUNTING DIAGRAM – VH Board – – Conductor Side –

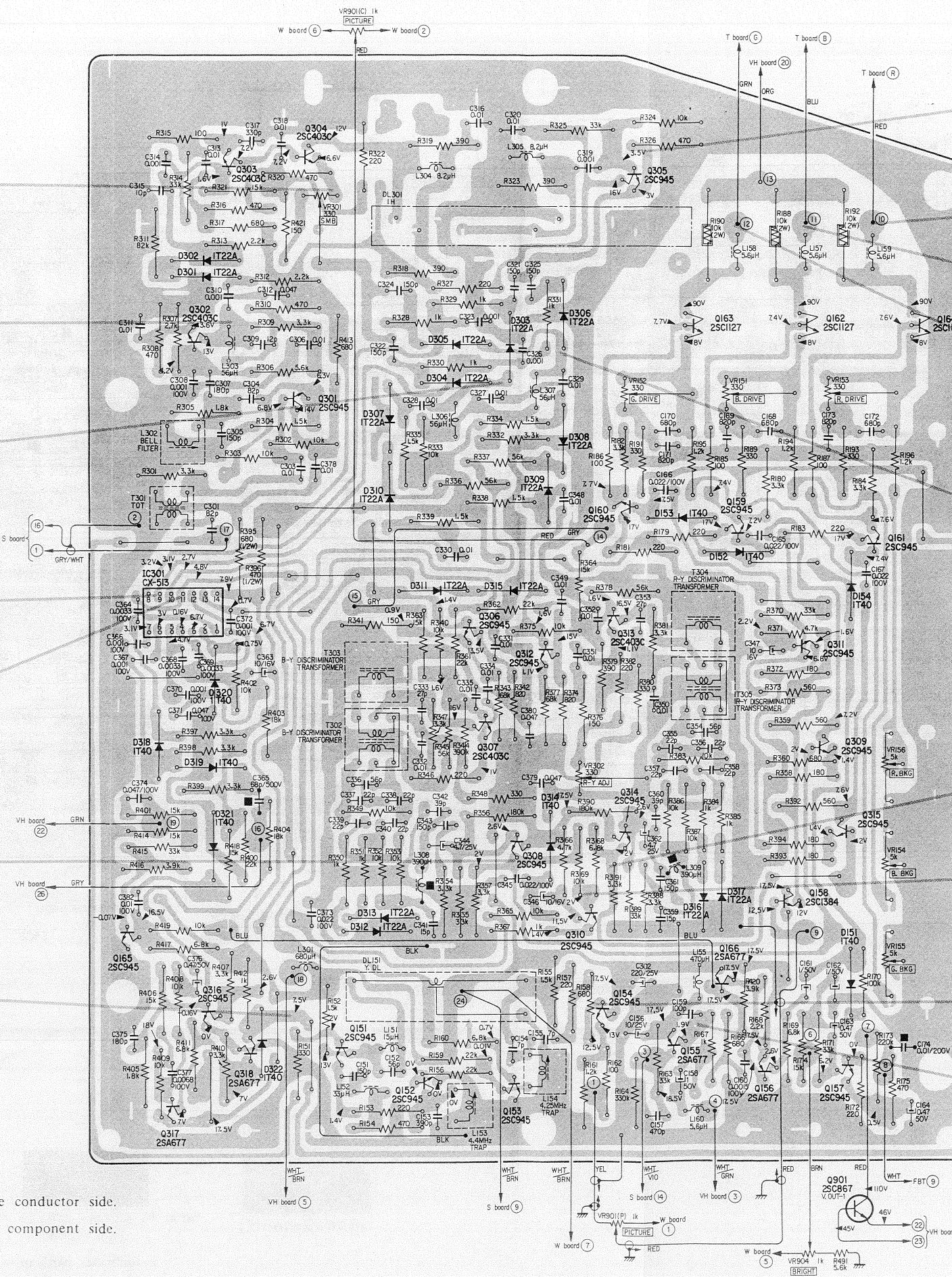


KV-1310R KV-1310R

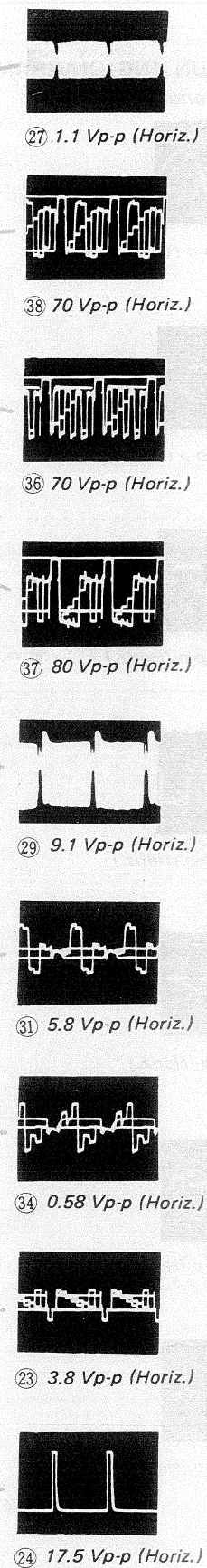
5-8. MOUNTING DIAGRAM - C Board - - Conductor Side -



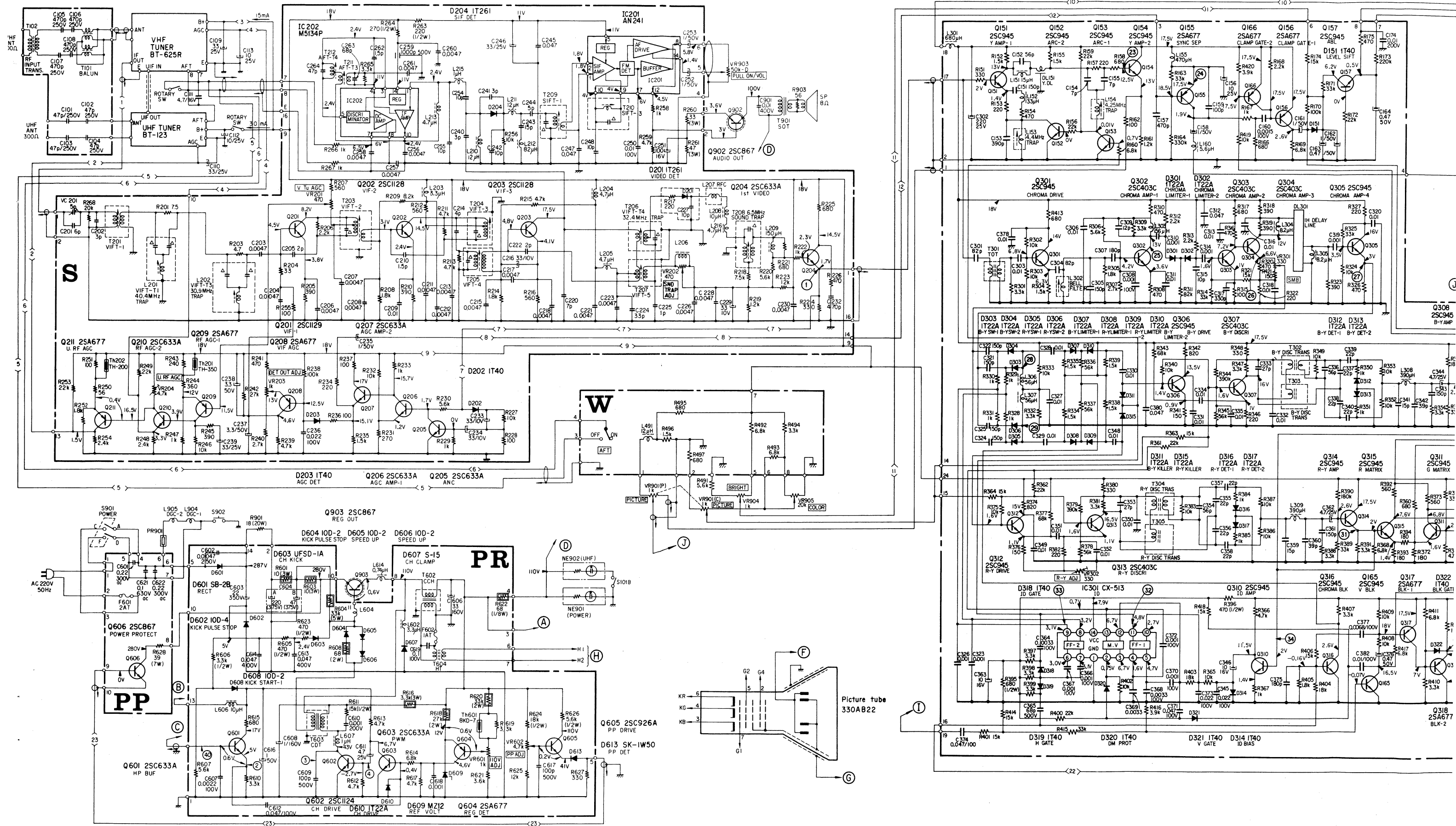
Note: ● indicates parts or wire connection point on the conductor side.
○ indicates parts or wire connection point on the component side.
■ indicates parts mounted on the conductor side.

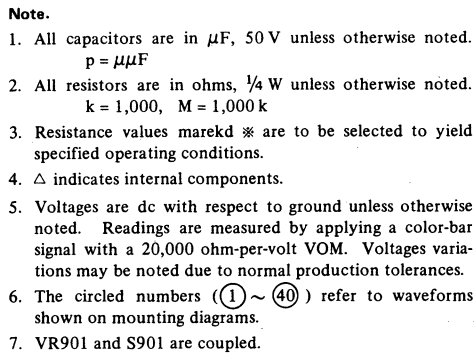


Q & IC	D	ADJ
Q304 Q303		
Q305		VR301
D302 D301		
D306		
D305 D303		
D304		VR152 VR151 VR153
D307		
D308		
D309		
D310		
Q163 Q162 Q164		
Q302		
Q160		
Q159 Q161		
D153		
D152		
D154		
D311 D315		
IC301		
Q313		
Q306		
Q311		
Q312		
D320		
Q307		
Q309		
D318		
D319		
VR156 VR302		
Q315		
Q314		
Q308		
D321 D314		
VR154		
Q158		
Q310		
D316 D312		
VR155		
Q165		
Q166		
D151		
Q316		
Q154		
Q318		
Q155		
D322		
Q156 Q157		
Q152 Q153		
Q317		
Q901		
VR901 VR904		



9. SCHEMATIC DIAGRAM



KV-131OR

SECTION 6

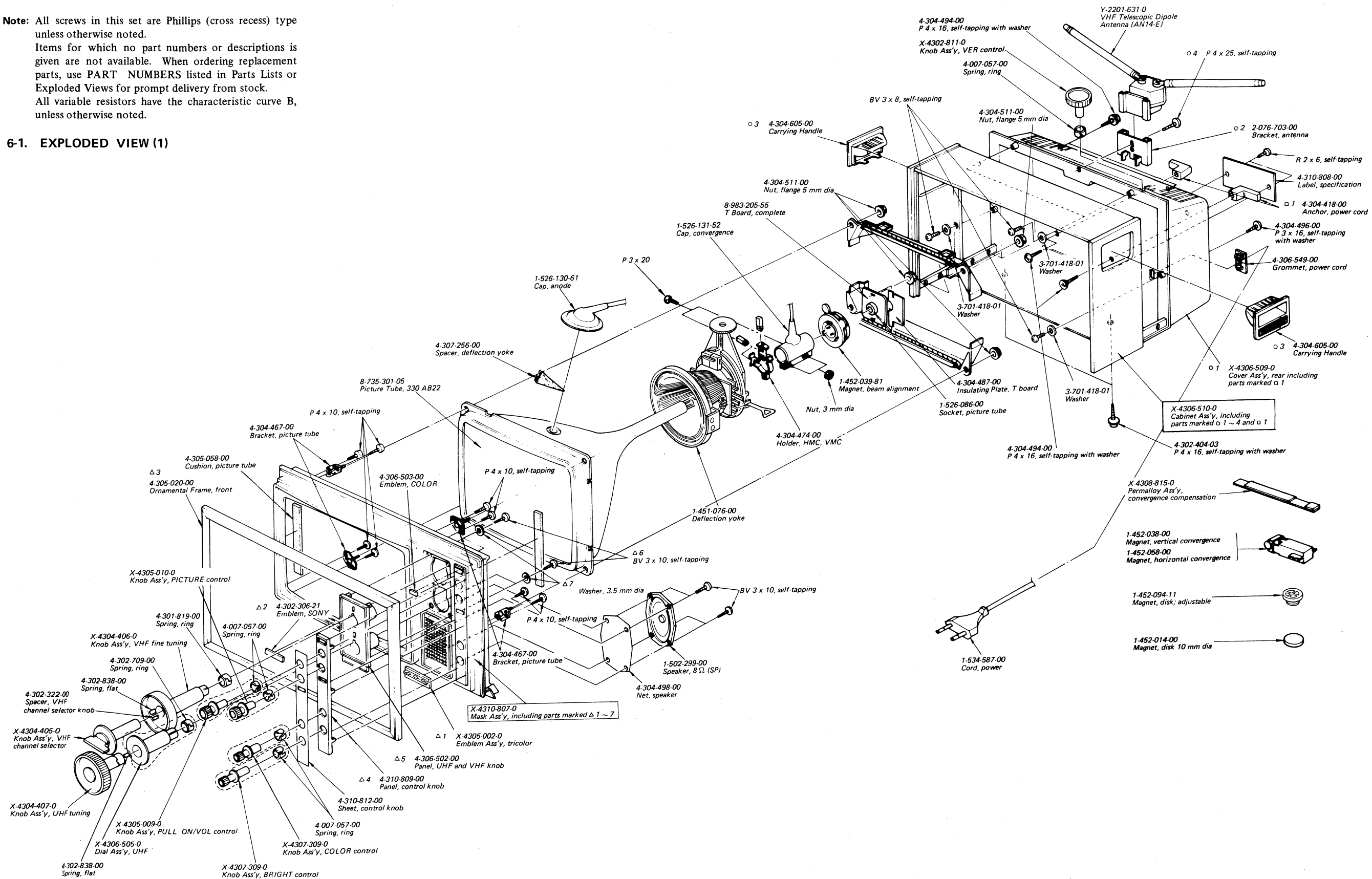
EXPLODED VIEWS

Note: All screws in this set are Phillips (cross recess) type unless otherwise noted.

Items for which no part numbers or descriptions are given are not available. When ordering replacement parts, use PART NUMBERS listed in Parts Lists or Exploded Views for prompt delivery from stock.

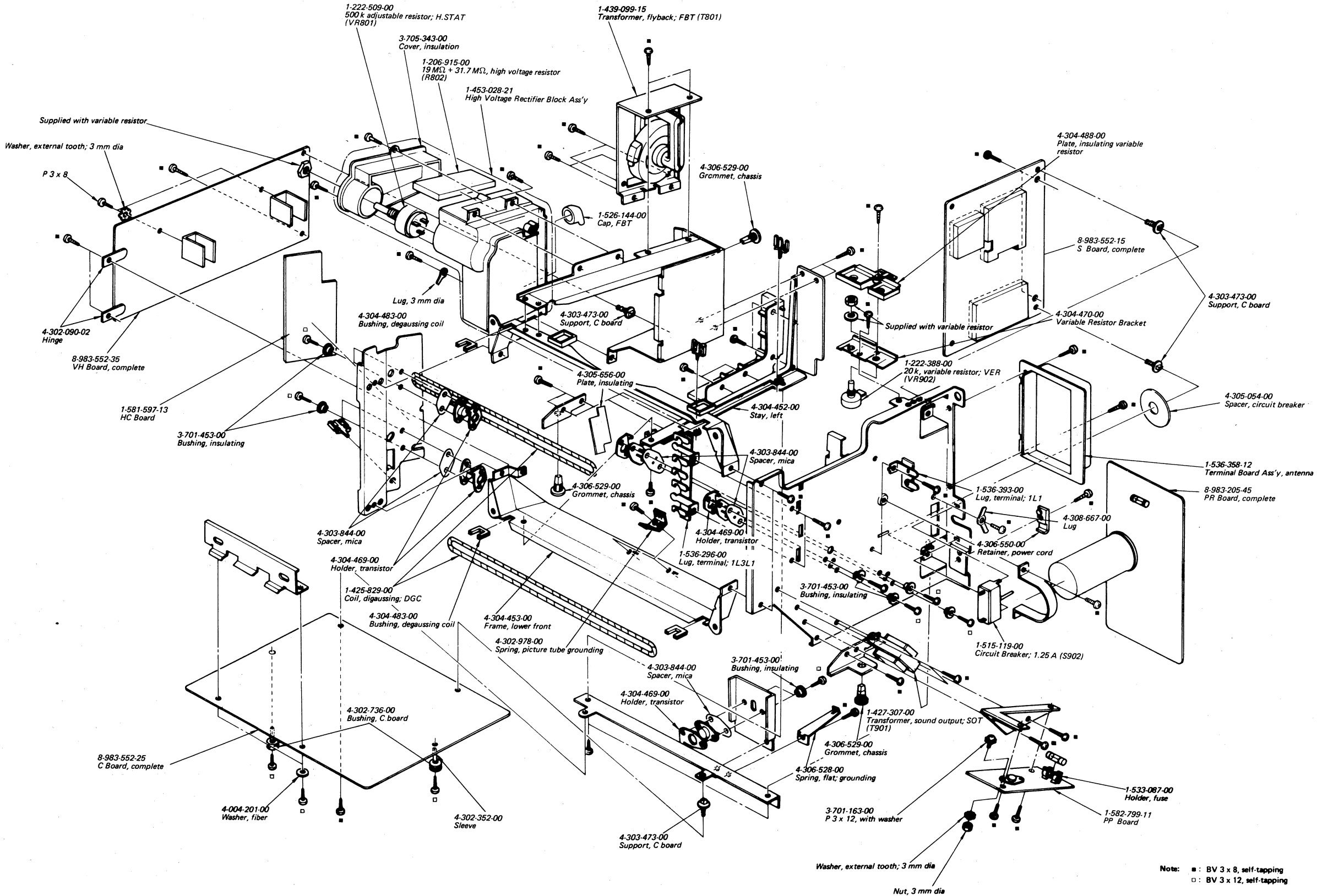
All variable resistors have the characteristic curve B, unless otherwise noted.

6-1. EXPLODED VIEW (1)

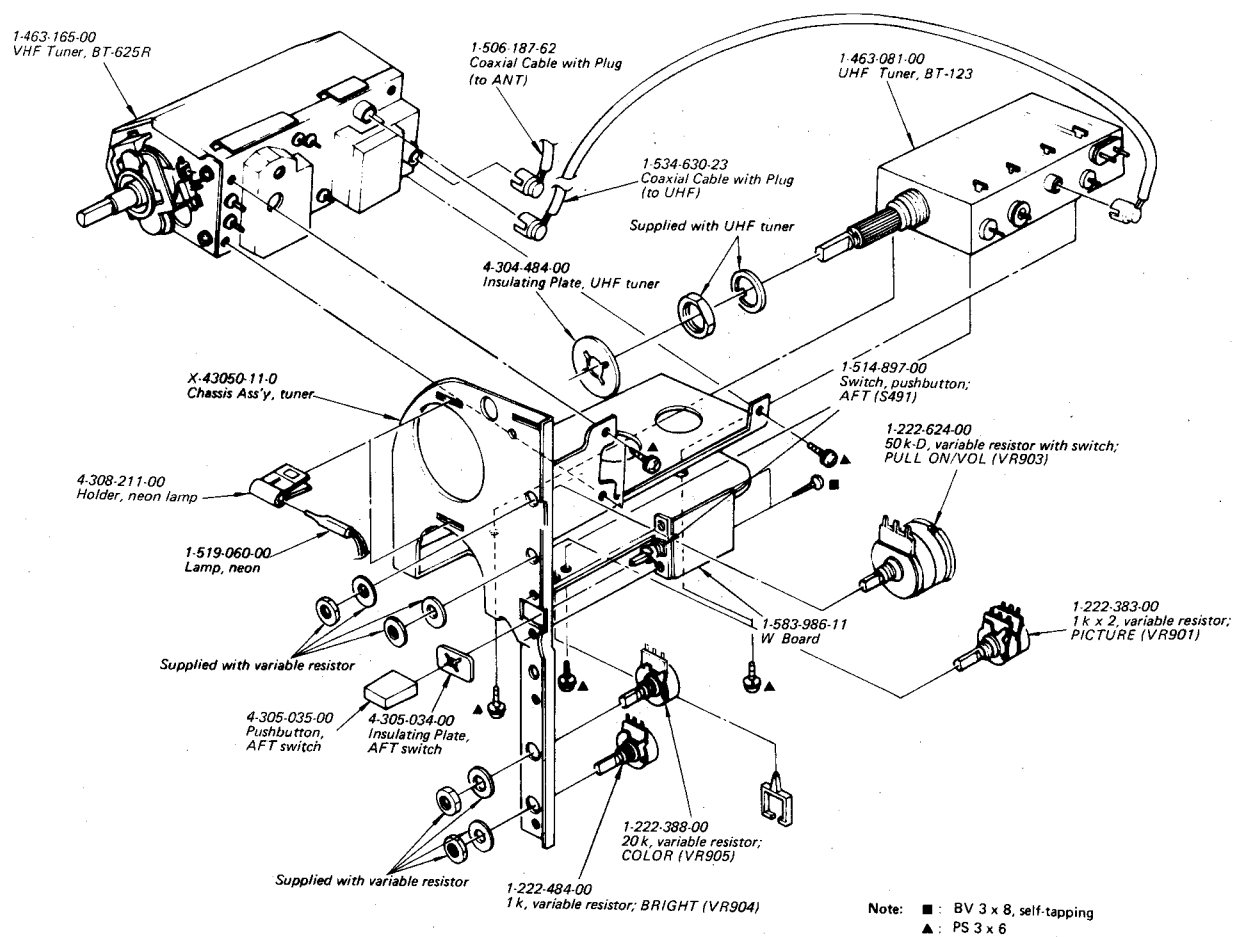


KV-131OR

6-2. EXPLODED VIEW (2)



6-3. EXPLODED VIEW (3)



SECTION 7

REPACKING

The KV-1310R's original shipping carton and packing materials are the ideal container for shipping the unit. However to secure the maximum protection,

the KV-1310R must be repacked in these materials precisely as before. The proper repacking procedures are shown in Fig. 7-1.

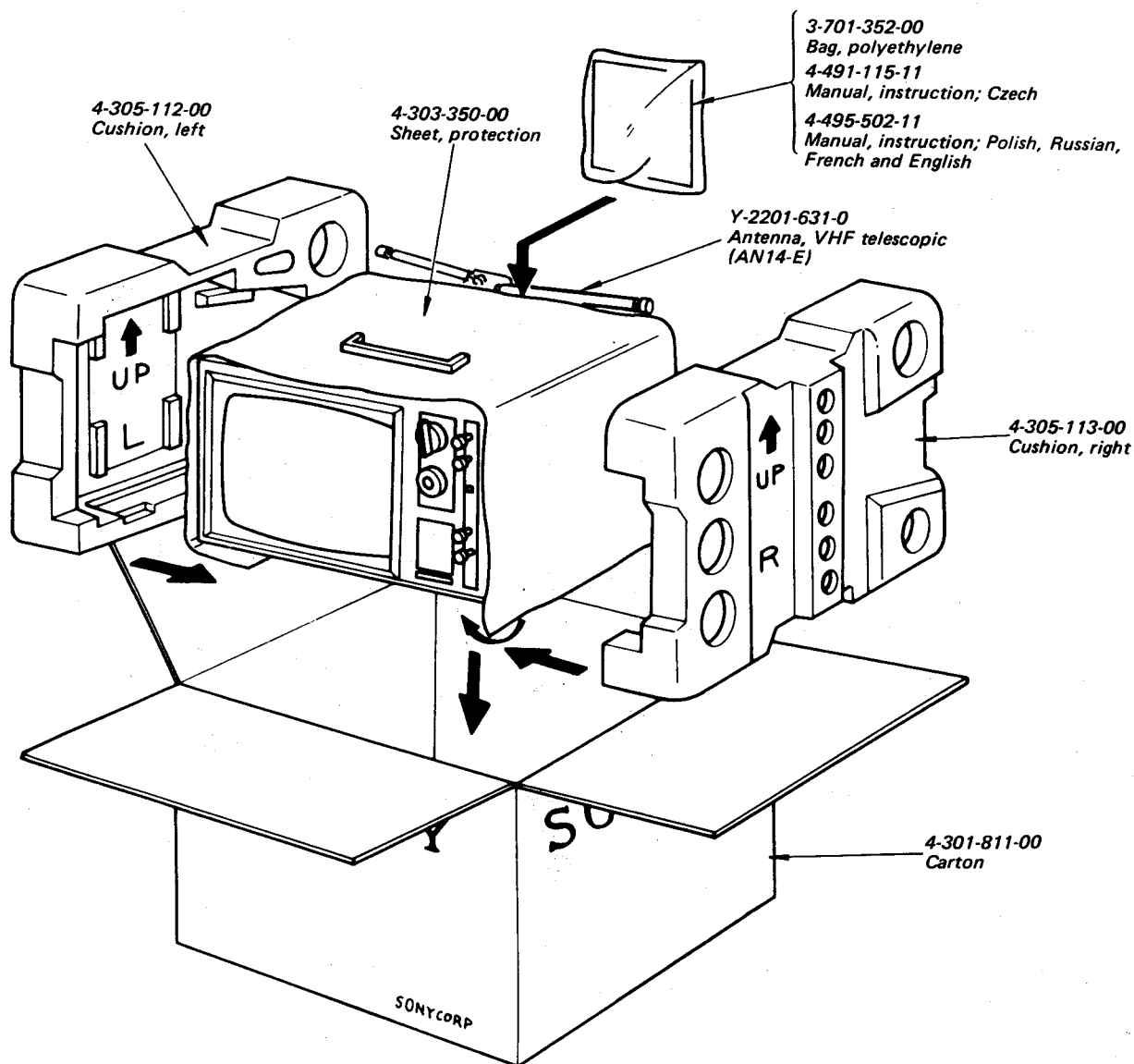


Fig. 7-1. Repacking

SECTION 8

ELECTRICAL PARTS LIST

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
TUNERS					
	1-463-165-00	VHF Tuner, BT-625R	Q209		2SA677
	1-463-081-00	UHF Tuner, BT-123	Q210		2SC633A
			Q211		2SA677
CIRCUIT BOARDS			Q301		2SC945
	1-581-597-13	HC Board	Q302		2SC403C
	1-582-799-11	PP Board	Q303		2SC403C
	1-583-986-11	W Board	Q304		2SC403C
	8-983-552-15	S Board, complete	Q305		2SC945
	8-983-552-35	VH Board, complete	Q306		2SC945
	8-983-205-45	PR Board, complete	Q307		2SC403C
	8-983-205-55	T Board, complete	Q308		2SC945
	8-983-552-25	C Board, complete	Q309		2SC945
			Q310		2SC945
SEMICONDUCTORS			Q311		2SC945
Transistors			Q312		2SC945
Q151		2SC945	Q313		2SC403C
Q152		2SC945	Q314		2SC945
Q153		2SC945	Q315		2SC945
Q154		2SC945	Q316		2SC945
Q155		2SA677	Q317		2SA677
			Q318		2SA677
Q156		2SA677	Q501		2SC633A
Q157		2SC945	Q502		2SC633A
Q158		2SC1384	Q503		2SC633A
Q159		2SC945	Q504		2SC1127
Q160		2SC945	Q505		2SC1124
Q161		2SC945	Q506		2SC633A
Q162		2SC1127	Q507		2SC633A
Q163		2SC1127	Q508		2SC926A
Q164		2SC1127	Q509		2SC1124
Q165		2SC945	Q511		2SC926A
Q166		2SA677	Q601		2SC633A
Q201		2SC1129	Q602		2SC1124
Q202		2SC1128	Q603		2SC633A
Q203		2SC1128	Q604		2SA677
Q204		2SC633A			
Q205		2SC633A			
Q206		2SC633A			
Q207		2SC633A			
Q208		2SA677			

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
Q605		2SC926A
Q606		2SC867
Q801		2SC1034
Q802		2SC1316
Q901		2SC867
Q902		2SC867
Q903		2SC867

Diodes

D151	1T40
D152	1T40
D153	1T40
D154	1T40
D201	1T261
D202	1T40
D203	1T40
D204	1T261
D301	1T22A
D302	1T22A
D303	1T22A
D304	1T22A
D305	1T22A
D306	1T22A
D307	1T22A
D308	1T22A
D309	1T22A
D310	1T22A
D311	1T22A
D312	1T22A
D313	1T22A
D314	1T40
D315	1T22A
D316	1T22A
D317	1T22A
D318	1T40
D319	1T40
D320	1T40
D321	1T40
D322	1T40
D501	1T22
D502	1T22

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
D503		HF.SD-1C
D504		SB-2
D505		1T22
D506		1T22A
D507		HF.SD-1Z
D508		SB-2
D511		1T40
D512		1T40
D513		HF.SD-1Z

D601	SB-2B
D602	10D-4
D603	UF.SD-1A
D604	10D-2
D605	10D-2
D606	10D-2
D607	S-15
D608	10D-2
D609	MZ12
D610	1T22A
D613	SK-1W50
D801	SB-2C
D802	SB-2B
D803	10D-05

ICs

IC201	AN241
IC202	M5134P
IC301	CX-513

Miscellaneous

PR901	1-800-275-00	Posistor	
SR501	1-800-032-00	Varistor	TD-80
Th201	1-800-071-00	Thermistor	TH-350
Th202	1-800-059-00	Thermistor	TH-200
Th502	1-800-069-00	Thermistor	TH-1500
Th601	1-800-081-00	Thermistor	8KD-7

COILS

All coils are microinductor unless otherwise noted.

L151	1-407-159-00	15 μ H
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<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
L152	1-407-699-00	33 μ H
L153	1-409-287-00	Trap, 4.4 MHz
L154	1-409-193-00	Trap, 4.25 MHz
L155	1-407-177-00	470 μ H
L157	1-407-187-00	5.6 μ H
L158	1-407-187-00	5.6 μ H
L159	1-407-187-00	5.6 μ H
L160	1-407-187-00	5.6 μ H
L201	1-409-214-00	Video i-f, VIFT-T1;40.4 MHz TRAP
L202	1-409-215-00	Video i-f, VIFT-T3;30.9 MHz TRAP
L203	1-407-184-00	3.3 μ H
L204	1-407-186-00	4.7 μ H
L205	1-407-186-00	4.7 μ H
L206	1-407-184-00	3.3 μ H
L207	1-425-504-00	Radio Frequency Choke, RFC
L208	1-407-190-00	10 μ H
L209	1-407-171-00	150 μ H
L210	1-407-158-00	12 μ H
L211	1-407-158-00	12 μ H
L212	1-407-168-00	82 μ H
L213	1-407-186-00	4.7 μ H
L215	1-407-178-00	1 μ H
L216	1-407-186-00	4.7 μ H
L301	1-407-557-00	680 μ H
L302	1-409-287-00	BELL FILTER
L303	1-407-166-00	56 μ H
L304	1-407-189-00	8.2 μ H
L305	1-407-189-00	8.2 μ H
L306	1-407-166-00	56 μ H
L307	1-407-166-00	56 μ H
L308	1-407-176-00	390 μ H
L309	1-407-176-00	390 μ H
L491	1-407-158-00	12 μ H
L501	1-407-646-00	1.5 mH
L502	1-459-075-00	3.3 mH, dynamic convergence;DCC
L503	1-459-074-00	6.8 mH, horizontal centering;HCC
L504	1-407-346-00	200 μ H, spook choke
L505	1-407-553-00	82 μ H, line choke

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
L506	1-407-193-00	680 μ H
L507	1-407-364-00	3.3 μ H, spook choke
L508	1-407-190-00	10 μ H
L515	1-407-364-00	3.3 μ H, spook choke
L602	1-407-364-00	3.3 μ H, spook choke
L604	1-407-364-00	spook choke
L606	1-407-190-00	10 μ H
L607	1-407-178-00	1 μ H
L614	1-407-365-00	0.74 μ H
L801	1-407-364-00	3.3 μ H, spook choke
L802	1-407-364-00	spook choke
L803	1-407-364-00	3.3 μ H, spook choke
L804	1-407-364-00	spook choke
L805	1-407-364-00	3.3 μ H, spook choke
L901	1-451-096-00	Deflection Yoke
L902		
L903		
L904	1-425-829-00	Degaussing, DGC-1
L905	1-425-829-00	Degaussing, DGC-2
L906	1-452-039-81	Purity Improving, PIC
DL151	1-415-088-00	Y Delay Line, Y DL
DL301	1-415-089-00	Delay Line, DL 1H

TRANSFORMERS

T101	1-417-033-00	Balun (included in antenna terminal board ass'y)
T102	1-417-040-00	RF Input (included in antenna terminal board ass'y)
T201	1-403-728-00	Video i-f, VIFT-1
T203	1-403-729-00	Video i-f, VIFT-2
T204	1-403-841-00	Video i-f, VIFT-3
T205	1-403-729-00	Video i-f, VIFT-4
T206	1-409-289-00	Video i-f, VIFT-T4;32.4 MHz TRAP
T207	1-403-730-00	Video i-f, VIFT-T5
T208	1-409-208-00	Trap; 6.5 MHz
T209	1-403-864-00	Sound i-f, SIFT-1
T210	1-403-843-00	Sound i-f SIFT-3

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
T211	1-403-810-00	Automatic Fine Tuning, AFT-T3
T212	1-403-811-00	Automatic Fine Tuning, AFT-T4
T301	1-405-372-00	Take-off, TOT
T302	1-403-987-00	Band Pass, BPT-1
T303	1-403-986-00	Burst Amplifier, BAT
T304	1-403-986-00	CW Oscillator, COT
T305	1-403-986-00	Band Pass, BPT-2
T501	1-437-030-00	Horizontal Drive, HDT
T502	1-439-097-32	Horizontal Output, HOT
T503	1-435-008-21	Vertical Blocking Oscillator, VBT
T602	1-437-032-00	Chopper Choke, CCH
T603	1-437-033-00	Chopper Drive, CDT
T604	1-441-855-00	Heater, HT
T801	1-439-099-15	Flyback, FBT
T901	1-427-307-00	Sound Output, SOT

CAPACITORS

All capacitors are in μF , 50 V and of ceramic unless otherwise noted. p = μpF , elect = electrolytic.

C101	1-102-238-11	47 p	250 Vac	} (included in antenna terminal board ass'y
C102	1-102-238-11	47 p	250 Vac	
C103	1-102-238-11	47 p	250 Vac	
C104	1-102-238-11	47 p	250 Vac	
C105	1-102-239-11	470 p	250 Vac	} (included in antenna terminal board ass'y
C106	1-102-239-11	470 p	250 Vac	
C107	1-102-239-11	470 p	250 Vac	
C108	1-102-239-11	470 p	250 Vac	
C109	1-121-404-11	33	25 V	elect
C110	1-121-404-11	33	25 V	elect
C111	1-121-257-11	47	16 V	elect (bipolar)
C112	1-121-398-11	10	25 V	elect
C113	1-121-398-11	10	25 V	elect
C151	1-101-361-11	150 p		
C152	1-101-884-11	56 p		
C153	1-102-822-11	390 p		

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
C154	1-102-809-11	7 p
C155	1-102-809-11	7 p
C156	1-121-398-11	10 25 V elect
C157	1-102-824-11	470 p
C158	1-121-391-11	1 50 V elect
C159	1-102-973-11	100 p
C160	1-108-616-11	0.0015 100 V mylar
C161	1-121-391-11	1 50 V elect
C163	1-121-726-11	0.47 50 V elect
C164	1-121-726-11	0.47 50 V elect
C165	1-108-630-11	0.022 100 V mylar
C166	1-108-630-11	0.022 100 V mylar
C167	1-108-630-11	0.022 100 V mylar
C168	1-102-116-11	680 p
C169	1-102-117-11	820 p
C170	1-102-116-11	680 p
C171	1-102-117-11	820 p
C172	1-102-116-11	680 p
C173	1-102-117-11	820 p
C174	1-108-692-11	0.01 200 V mylar
C201	1-102-857-11	6 p
C202	1-102-862-11	3 p
C203	1-101-003-11	0.0047
C204	1-101-003-11	0.0047
C205	1-102-935-11	2 p
C206	1-101-003-11	0.0047
C207	1-101-003-11	0.0047
C208	1-101-003-11	0.0047
C209	1-101-004-11	0.01
C210	1-101-576-11	1.5 p
C211	1-101-003-11	0.0047
C212	1-101-003-11	0.0047
C213	1-101-003-11	0.0047
C214	1-101-552-11	3.5 p
C215	1-101-003-11	0.0047
C216	1-121-402-11	33 10 V elect
C217	1-101-003-11	0.0047

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>				
C218	1-101-003-11	0.0047				
C220	1-102-662-11	7 p				
C221	1-102-003-11	0.0047				
C222	1-102-935-11	2 p				
C223	1-101-003-11	0.0047				
C224	1-102-963-11	33 p				
C225	1-102-934-11	1 p				
C226	1-101-003-11	0.0047				
C227	1-102-947-11	10 p				
C228	1-101-003-11	0.0047				
C229	1-121-402-11	33	10 V	elect		
C230	1-101-003-11	0.0047				
C232	1-102-098-11	470 p				
C233	1-121-402-11	33	10 V	elect		
C234	1-121-402-11	33	10 V	elect		
C235	1-121-391-11	1	50 V	elect		
C236	1-108-630-11	0.022	100 V	mylar		
C237	1-121-393-11	3.3	50 V	elect		
C238	1-121-393-11	3.3	50 V	elect		
C239	1-121-404-11	33	25 V	elect		
C240	1-102-940-11	3 p				
C241	1-102-940-11	3 p				
C242	1-102-947-11	10 p				
C243	1-102-951-11	15 p				
C244	1-102-942-11	5 p				
C245	1-101-006-11	0.047				
C246	1-121-404-11	33	25 V	elect		
C247	1-102-006-11	0.047				
C248	1-102-858-11	10 p				
C250	1-108-626-11	0.01	100 V	mylar		
C251	1-121-415-11	100	16 V	elect		
C252	1-121-391-11	1	50 V	elect		
C253	1-121-391-11	1	50 V	elect		
C254	1-102-947-11	10 p				
C255	1-102-947-11	10 p				
C256	1-101-003-11	0.0047				
C257	1-101-003-11	0.0047				
C258	1-101-003-11	0.0047				
C259	1-102-043-11	1000 p	500 V	feed through		
C260	1-101-003-11	0.0047				
C261	1-101-003-11	0.0047				
C262	1-101-576-11	1.5 p				
C263	1-102-525-11	68 p				
C264	1-102-774-11	47 p				
C301	1-102-863-11	82 p				
C302	1-121-422-11	220	25 V	elect		
C303	1-101-004-11	0.01				
C304	1-102-863-11	82 p				
C305	1-102-888-11	150 p				
C306	1-101-004-11	0.01				
C307	1-102-824-11	180 p				
C308	1-108-614-11	0.001	100 V	mylar		
C309	1-102-949-11	12 p				
C310	1-102-074-11	0.001				
C311	1-101-004-11	0.01				
C312	1-101-006-11	0.047				
C313	1-101-004-11	0.01				
C314	1-102-074-11	0.001				
C315	1-102-947-11	10 p				
C316	1-101-004-11	0.01				
C317	1-102-820-11	330 p				
C318	1-101-004-11	0.01				
C319	1-102-074-11	0.001				
C320	1-101-004-11	0.01				
C321	1-101-361-11	150 p				
C322	1-101-361-11	150 p				
C323	1-102-074-11	0.01				
C324	1-101-361-11	150 p				
C325	1-101-361-11	150 p				
C326	1-102-074-11	0.001				
C327	1-101-004-11	0.01				
C328	1-101-004-11	0.01				
C329	1-101-004-11	0.01				
C330	1-101-004-11	0.01				
C331	1-101-004-11	0.01				
C332	1-101-004-11	0.01				

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<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>			
C333	1-102-883-11	27 p			
C334	1-101-004-11	0.01			
C335	1-101-004-11	0.01			
C336	1-102-850-11	56 p			
C337	1-102-892-11	22 p			
C338	1-102-892-11	22 p			
C339	1-102-959-11	22 p			
C340	1-102-959-11	22 p			
C341	1-102-951-11	15 p			
C342	1-102-965-11	39 p			
C343	1-101-361-11	150 p			
C344	1-121-395-11	4.7	25 V	elect	
C345	1-108-630-11	0.022	100 V	mylar	
C346	1-121-651-11	10	16 V	elect	
C347	1-121-651-11	10	16 V	elect	
C348	1-101-004-11	0.01			
C349	1-101-004-11	0.01			
C350	1-101-004-11	0.01			
C351	1-101-004-11	0.01			
C352	1-101-004-11	0.01			
C353	1-102-883-11	27 p			
C354	1-102-850-11	56 p			
C355	1-102-720-11	22 p			
C356	1-102-720-11	22 p			
C357	1-102-959-11	22 p			
C358	1-102-959-11	22 p			
C359	1-102-951-11	15 p			
C360	1-102-965-11	39 p			
C361	1-101-361-11	150 p			
C362	1-121-395-11	4.7	25 V	elect	
C363	1-121-651-11	10	16 V	elect	
C364	1-108-620-11	0.0033	100 V	mylar	
C365	1-102-989-11	68 p	500 V		
C366	1-108-614-11	0.001	100 V	mylar	
C367	1-108-614-11	0.001	100 V	mylar	
C368	1-108-620-11	0.0033	100 V	mylar	
C369	1-108-620-11	0.0033	100 V	mylar	
C370	1-108-614-11	0.001	100 V	mylar	
C371	1-108-634-11	0.047	100 V	mylar	

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>			
C372	1-108-614-11	0.001	100 V	mylar	
C373	1-108-630-11	0.022	100 V	mylar	
C374	1-108-634-11	0.047	100 V	mylar	
C375	1-102-976-11	180 p			
C376	1-121-726-11	0.47	50 V	elect	
C377	1-108-624-11	0.0068	100 V	mylar	
C378	1-101-004-11	0.01			
C379	1-101-006-11	0.047			
C380	1-101-006-11	0.047			
C382	1-108-626-11	0.01	100 V	mylar	
C501	1-102-947-11	10 p			
C502	1-108-632-11	0.033	100 V	mylar	
C503	1-108-632-11	0.033	100 V	mylar	
C504	1-121-391-11	1	50 V	elect	
C505	1-108-634-31	0.047	100 V	mylar	
C506	1-121-395-11	4.7	25 V	elect	
C507	1-108-638-11	0.1	100 V	mylar	
C508	1-121-651-11	10	16 V	elect	
C509	1-106-212-12	0.047	100 V	mylar	
C510	1-106-188-12	0.0047	100 V	mylar	
C511	1-106-184-12	0.0033	100 V	mylar	
C512	1-108-638-11	0.1	100 V	mylar	
C514	1-102-038-11	0.001	500 V		
C515	1-108-634-11	0.047	100 V	mylar	
C516	1-121-708-11	10	160 V	elect	
C517	1-102-219-11	680 p	1 kV		
C518	1-108-642-11	0.22	100 V	mylar	
C519	1-108-549-11	0.68	200 V	mylar	
C520	1-121-921-11	10	160 V	elect	
C521	1-121-918-11	4.7	100 V	elect	
C522	1-123-024-11	33	160 V	elect	
C523	1-121-416-11	100	25 V	elect	
C524	1-121-396-11	4.7	50 V	elect	
C527	1-121-405-11	33	50 V	elect	
C528	1-121-738-11	10	50 V	elect	
C529	1-108-626-11	0.01	100 V	mylar	
C530	1-108-626-11	0.01	100 V	mylar	

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>			
C531	1-131-158-11	10	16 V	solid aluminum	
C532	1-121-479-11	22	16 V	elect	
C533	1-127-024-11	2.2	10 V	solid aluminum	
C534	1-121-391-11	1	50 V	elect	
C535	1-121-917-11	20	100 V	elect	
C536	1-102-100-11	0.0022			
C537	1-121-409-11	47	16 V	elect	
C538	1-121-450-11	2.2	50 V	elect	
C539	1-121-450-11	2.2	50 V	elect	
C540	1-121-751-11	330	6.3 V	elect	
C541	1-102-002-11	680 p	500 V		
C542	1-108-690-31	0.0068	200 V	mylar	
C545	1-102-973-11	100 p			
C546	1-102-973-11	100 p			
C548	1-102-153-11	100 p	2 kV		
C549	1-101-810-11	100 p	500 V		
C550	1-102-973-11	100 p			
C551	1-102-074-11	0.001			
C552	1-101-004-11	0.001			
C556	1-102-978-11	220 p			
C557	1-108-632-11	0.033	100 V	mylar	
C558	1-121-398-11	10	25 V	elect	
C571	1-102-074-11	0.001			
C601	1-108-745-11	0.22	300 Vac	mylar	
C602	1-102-240-11	0.0047	250 V		
C603	1-123-022-11	22	350 V	elect	
C604(A+B)	1-125-080-11	220 + 47	375 V	elect	
C606	1-123-024-11	33	160 V	elect	
C607	1-106-180-12	0.0022	100 V	mylar	
C608	1-121-189-11	1	160 V	elect	
C609	1-101-810-11	100 p	500 V		
C610	1-108-680-11	0.001	200 V	mylar	
C611	1-121-395-11	4.7	25 V	elect	
C612	1-106-212-12	0.047	100 V	mylar	
C613	1-105-961-13	0.047	400 V	mylar	
C614	1-105-961-13	0.047	400 V	mylar	

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>			
C616	1-121-391-11	1	50 V	elect	
C617	1-101-810-11	100 p	500 V		
C618	1-102-074-11	0.001			
C619	1-108-638-11	0.1	100 V	mylar	
C621	1-129-739-11	0.1	630 Vac	film	
C622	1-108-745-11	0.22	300 Vac	mylar	
C701	1-119-327-11	0.47	500 V	elect	
C702	1-102-050-11	0.01	500 V		
C801	1-129-885-11	16000 p	1 kV	film	
C802	1-129-936-11	7500 p	1.5 kV	mylar	
C804	1-102-155-11	330 p	2 kV	included in High Voltage Rectifier Block Ass'y	
C805	1-102-219-11	680 p	1 kV		
C806	1-102-038-11	0.001	500 V		
C807	1-102-820-11	330 p			
C808	1-102-038-11	0.001	500 V		
C810	1-102-153-11	100 p	2 kV		
C901	1-105-953-13	0.01	400 V	mylar	
VC201	1-141-138-11	5 p		trimmer	
SG701	1-519-063-11	Spark Gap, 1.5 kV			
SG702	1-519-063-11	Spark Gap, 1.5 kV			
SG703	1-519-063-11	Spark Gap, 1.5 kV			
SG704	1-519-063-11	Spark Gap, 1.5 kV			
SG705	1-519-063-11	Spark Gap, 1.5 kV			
SG706	1-519-063-11	Spark Gap, 1.5 kV			

RESISTORS

All resistors are in ohms. $\pm 5\%$, $\frac{1}{4}$ W and carbon type resistors (except special type) are omitted. Check schematic diagram for resistance values. All variable and adjustable resistors have characteristic curve B, unless otherwise noted. k = 1000, M = 1000 k

R188	1-206-688-11	10 k	2W	metal oxide (nonflammable)
R190	1-206-688-11	10 k	2W	metal oxide (nonflammable)
R192	1-206-688-11	10 k	2W	metal oxide (nonflammable)
R263	1-244-857-11	220	$\frac{1}{2}$ W	carbon
R264	1-244-859-11	270	$\frac{1}{2}$ W	carbon

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Ref. No.	Part No.	Description		
R395	1-244-869-11	680	1/2 W	carbon
R396	1-244-865-11	470	1/2 W	carbon
R508	1-206-017-11	1.8 k	2 W	metal oxide
R523	1-202-605-11	22 k	1/2 W	composition
R524	1-207-903-11	10	0.25 A	fuse
R527	1-206-111-11	39 k	1 W	metal oxide
R529	1-211-490-11	4.7		carbon (nonflammable)
R530	1-207-982-11	2.7	0.65 A	fuse
R549	1-207-471-11	4.7	1/2 W	wirewound
R552	1-206-110-11	33 k	1 W	metal oxide
R554	1-244-901-11	15 k	1/2 W	carbon
R558	1-244-829-11	15	1/2 W	carbon
R561	1-244-873-11	1 k	1/2 W	carbon
R563	1-244-897-11	10 k	1/2 W	carbon
R564	1-244-901-11	15 k	1/2 W	carbon
R565	1-244-899-11	12 k	1/2 W	carbon
R566	1-211-932-11	27	1/8 W	carbon (nonflammable)
R573	1-206-080-11	82	1 W	metal oxide
R574	1-206-688-11	10 k	2 W	metal oxide (nonflammable)
R601	1-207-657-11	10	3 W	wirewound (nonflammable)
R603	1-207-657-11	10	3 W	wirewound (nonflammable)
R604	1-206-823-11	33 k	5 W	metal oxide (nonflammable)
R605	1-244-865-11	470	1/2 W	
R606	1-244-885-11	3.3 k	1/2 W	carbon
R608	1-206-483-11	68	2 W	metal oxide (nonflammable)
R611	1-244-901-11	15 k	1/2 W	carbon
R616	1-206-737-11	3.3 k	3 W	metal oxide (nonflammable)
R618	1-206-698-11	27 k	2 W	metal oxide (nonflammable)
R620	1-206-700-11	33 k	2 W	metal oxide (nonflammable)
R622	1-211-931-11	68	1/8 W	carbon (nonflammable)
R623	1-244-865-11	470	1/2 W	carbon
R624	1-244-903-11	18 k	1/2 W	carbon
R628	1-207-942-11	39	7 W	wirewound
R701	1-202-581-11	2.2 k	1/2 W	composition
R702	1-202-581-11	2.2 k	1/2 W	composition
R703	1-202-629-11	220 k	1/2 W	composition
R704	1-202-621-11	100 k	1/2 W	composition

Ref. No.	Part No.	Description		
R705	1-202-635-11	390 k	1/2 W	composition
R706	1-202-581-11	2.2 k	1/2 W	composition
R707	1-202-603-11	18 k	1/2 W	composition
R708	1-202-637-11	470 k	1/2 W	composition
R801	1-244-895-11	8.2 k	1/2 W	
R802	1-206-915-11	19 MΩ+ 31.7 MΩ, high voltage included in High Voltage Rectifier Block Ass'y		
*R803	1-206-916-11	1.8	3 W	metal oxide (nonflammable)
	1-206-918-11	2.7	3 W	metal oxide (nonflammable)
	1-206-921-11	4.7	3 W	metal oxide (nonflammable)
	1-206-922-11	5.6	3 W	metal oxide (nonflammable)
*R804	1-206-925-11	10	3 W	metal oxide (nonflammable)
	1-206-927-11	15	3 W	metal oxide (nonflammable)
	1-206-928-11	18	3 W	metal oxide (nonflammable)
	1-206-929-11	22	3 W	metal oxide (nonflammable)
R805	1-202-597-11	10 k	1/2 W	composition included in High Voltage Rectifier Block Ass'y
R806	1-217-007-11	1	3 W	wirewound
R901	1-217-521-11	18	20 W	wirewound
VR151	1-222-515-00	330, adjustable; B.DRIVE		
VR152	1-222-515-00	330, adjustable; G.DRIVE		
VR153	1-222-515-00	330, adjustable; R.DRIVE		
VR154	1-222-344-00	5 k, adjustable; B.BKG		
VR155	1-222-344-00	5 k, adjustable; G.BKG		
VR156	1-222-344-00	5 k, adjustable; R.BKG		
VR201	1-222-516-00	470, adjustable; V.TU AGC		
VR202	1-222-516-00	470, adjustable; SND TRAP ADJ		
VR203	1-222-517-00	1 k, adjustable; DET OUT ADJ		
VR204	1-222-518-00	4.7 k, adjustable; U.RF AGC		
VR301	1-222-515-00	330, adjustable; SMB ADJ		
VR302	1-222-515-00	330, adjustable; R-Y ADJ		

* to be selected

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
VR501	1-222-725-00	20 k, adjustable; H.FREQ
VR502	1-223-017-00	50, adjustable; TILT
VR503	1-223-017-00	50, adjustable; H.CENT
VR504	1-222-725-00	20 k, adjustable; PIN ADJ
VR505	1-222-344-00	5 k, adjustable; H.SIZE
VR506	1-222-512-00	10 k, adjustable; V.SIZE
VR507	1-222-512-00	10 k, adjustable; V.LIN
VR508	1-222-784-00	3.3 k, adjustable; V.BIAS
VR601	1-222-517-00	1 k, adjustable; 110 V ADJ
VR602	1-222-518-00	4.7 k, adjustable; PP ADJ
VR701	1-222-809-00	500 k, adjustable; SCRN
VR801	1-222-509-00	500 k, adjustable; H.STAT included in High Voltage Rectifier Block Ass'y
VR901	1-222-383-00	1 k x 2, variable; PICTURE
VR902	1-222-388-00	20 k, variable; VER
VR903,S901	1-222-624-00	50 k-D, variable; PULL ON/VOL
VR904	1-222-484-00	1 k, variable; BRIGHT
VR905	1-222-388-00	20 k, variable; COLOR

MISCELLANEOUS

DC801	1-453-028-21	High Voltage Rectifier Block Ass'y including;
C804		330 p 2 kV
R802	1-206-915-00	19 M Ω + 31.7 M Ω , high voltage
R805	1-202-597-11	10 k $\frac{1}{2}$ W composition
VR801	1-222-509-00	500 k, variable resistor; H.STAT
	3-705-343-00	Lid, insulating case
F601	1-532-203-00	Fuse, 2 AT
F602	1-532-078-00	Fuse, 1 AT
NE901	1-519-060-00	Neon Lamp, 110 Vdc (UHF)
NE902	1-519-060-00	Neon Lamp, 110 Vdc (VHF)

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
S491	1-514-897-00	Switch, pushbutton; AFT
S902	1-515-119-00	Circuit Breaker, 1.25 A
SP	1-502-299-00	Speaker, 8 ohms
	1-452-014-00	Magnet, disk; 10 mm dia
	1-452-038-00	Magnet, vertical convergence
	1-452-039-81	Magnet, beam alignment
	1-452-058-00	Magnet, horizontal convergence
	1-452-094-11	Magnet, disk; adjustable
	1-506-187-62	Coaxial Cable with Plug
	1-506-324-11	Coaxial Cable with Plug
	1-526-086-00	Socket, picture tube
	1-526-130-61	Cap, anode
	1-526-144-00	Cap, FBT
	1-526-131-52	Cap, convergence
	1-533-087-00	Holder, fuse
	1-534-587-00	Cord, power
	1-534-630-23	Coaxial Cable with Plug
	1-536-296-00	Lug, terminal; 1L3L1
	1-536-358-12	Terminal Board Ass'y, antenna including
	C101	1-102-238-11 47 p 250 Vac
	C102	1-102-238-11 47 p 250 Vac
	C103	1-102-238-11 47 p 250 Vac
	C104	1-102-238-11 47 p 250 Vac
	C105	1-102-239-11 470 p 250 Vac
	C106	1-102-239-11 470 p 250 Vac
	C107	1-102-239-11 470 p 250 Vac
	C108	1-102-239-11 470 p 250 Vac
	T101	1-417-033-00 Balun
	T102	1-417-040-00 RF Input
	1-536-393-00	Lug, terminal; 1L1
	8-735-301-05	Picture Tube, 330 AB 22
	X-4308-815-0	Permalloy Ass'y

PACKING MATERIALS AND ACCESSORIES

<u>Part No.</u>	<u>Description</u>
Y-2201-631-0	VHF Telescopic Dipole Antenna (AN14-E)
3-701-352-00	Bag, polyethylene
4-303-350-00	Sheet, protection
4-305-112-00	Cushion, left
4-305-113-00	Cushion, right
4-310-811-00	Carton
4-491-115-11	Manual, instruction; Czech
4-495-502-11	Manual, instruction; Polish, Russian, French and English

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